

**RESULTS OF A CULTURAL RESOURCE INVENTORY OF PORTIONS
OF FORT CARSON MILITARY RESERVATION AND
TEST EXCAVATION OF SITE 5EP2524,
EL PASO COUNTY, COLORADO, 1996.**

By

**Mona Charles
Randy Nathan
Philip Duke
Nikki Salazar
and
Sean Larmore**

**Department of Anthropology,
Fort Lewis College, Durango, CO 81301.
Completed under CA 6115-4-8024**

**Research administered by:
Midwest Archeological Center,
National Park Service,
Lincoln, NE 68508.**

19990526 000

**The report was prepared for and funded by: The Directorate of Environmental
Compliance and Management, Fort Carson, Colorado**

April 1999

**DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited**

DTIC QUALITY INSPECTED 4

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE April 1999	3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE Results of a Cultural Resource Inventory of Portions of Fort Carson Military Reservation and Test Excavation of Site 5EP2524, El Paso County, Colorado, 1996.			5. FUNDING NUMBERS CA 6115-4-8024	
6. AUTHOR(S) Mona Charles, Randy Nathan, Philip Duke, Nikki Salazar, Sean Larmore				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Fort Lewis College 1000 Rim Drive Durango, CO 81301			8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Midwest Archeological Center National Park Service 100 Centennial Mall N, Room 474 Lincoln, NE 68508-3875			10. SPONSORING/MONITORING AGENCY REPORT NUMBER N/A	
11. SUPPLEMENTARY NOTES Prepared for and funded by The Directorate of Environmental Compliance and Management, Fort Carson, Colorado.				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Available			12b. DISTRIBUTION CODE N/A	
13. ABSTRACT (Maximum 200 words) Field work for this project consisted of a cultural resource inventory of 842 acres reevaluation of four previously recorded sites, and evaluative testing of site 5EP2524. The cultural resource inventory resulted in the location and recording of 16 archeological sites and 11 isolated finds, dating from the Late Archaic (1000 BC) to the Historic Period. The archeological site tested included a sparse surface artifact scatter, a historic road, and 21 boulder features. Test excavations showed that the boulder features, with three exceptions are of military origin. Two boulder alignments are historic and predate the military period, while a third feature may be of prehistoric origin. The earliest military artifacts found within the features suggest early 1960s use. A prehistoric cultural horizon that dated to 570 ± 50 (B.P.) was identified in the test excavations at the site but outside of the boulder features. This discovery suggests the site has the potential to yield significant archeological information and is therefore determined to be eligible for nomination to the National Register of Historic Places.				
14. SUBJECT TERMS Archeology, History, Fort Carson, Colorado			15. NUMBER OF PAGES 194	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT None	

FOREWORD

The archeological investigations reported in this manuscript are an important part of the Fort Carson Cultural Resources Management Program. The goal of the program is to maintain the largest possible area for military training while protecting significant cultural and environmental resources. The current study is part of an integrated plan that takes a long-term systematic approach to meeting identification, evaluation, and resource protection requirements mandated by the National Historic Preservation Act. This project is a valuable addition to our knowledge of the prehistory and resources of central Colorado. Under a cooperative agreement, the National Park Service, Midwest Archeological Center, provides assistance in meeting Fort Carson's cultural resources goals.

The first federally funded survey on Fort Carson began in 1978. Since then Fort Carson has used a multidisciplinary approach combining archeological theory and historical methods with geological, geomorphological, botanical and statistical techniques and procedures in order to focus its efforts to locate, evaluate, and protect significant cultural resources. Professional studies and consultations with Native American tribes have resulted in the identification of National Register of Historic Places eligible sites and districts. All major prehistoric and historic cultural periods recognized on the Great Plains and Rocky Mountains are represented by the cultural resources on Fort Carson and the Pinon Canyon Maneuver Site. Sites of the Paleoindian, Archaic, and Ceramic stages are present as are sites from the Fur Trade era, 19th century Hispanic and Euroamerican settlements, early 20th century homesteading and ranching, and World War II and Cold War era military sites.

The Cultural Resources Management Program is in the Directorate of Environmental Compliance and Management. The directorate is tasked with maintaining Fort Carson's compliance with federal, state, and local environmental laws and mandates. Because decisions affecting one resource will impact other resources, the decisions we make today will affect the condition of Department of Army lands and resources for future training, research, and recreation. Mission requirements, training resources, wildlife, range, soil, hydrology, air, and recreation influence cultural resources management decisions. Integrating compliance and resource protection concerns into a comprehensive planning process reduces the time and effort expended on the compliance process, minimizes conflicts between resource protection and use, allows flexibility in project design, minimizes costs, and maximizes resource protection.

Federal laws protect the resources on Fort Carson and the Pinon Canyon Maneuver Site. Theft and vandalism are federal crimes. Protective measures ensure that Army activity does not inadvertently impact significant cultural sites. Fort Carson does not give out site location information nor are sites developed for public visitation. Similar resources are located in the Picketwire Canyonlands where public visits can be arranged through the U.S. Forest Service, Comanche National Grasslands in La Junta, Colorado.

Fort Carson endeavors to make results of the resource investigations available to the public and scientific communities. Technical reports on cultural resources are on file at the Fort Carson Curation Facility (Building 2420) and the Colorado State Historic Preservation Office and are available through the National Technical Information Service, Springfield VA. Selected reports have been distributed to public libraries in Colorado. Three video programs produced by Fort Carson are periodically shown on Public Broadcasting Stations. Non-technical reports on the prehistory, history and rock art of southeastern Colorado have been distributed to schools and libraries within the state. Fort Carson continues to demonstrate that military training and resource protection are mutually compatible goals.

Stephen A. Chomko
Cultural Resources Manager
Directorate of Environmental Compliance and Management
Fort Carson, Colorado
April 1999

POPULAR ABSTRACT

Archeological investigations suggest that the Fort Carson Military Reservation, located south of Colorado Springs, Colorado, has been inhabited since approximately 10,000 years ago. During the prehistoric period, which lasted until about 250 years ago, inhabitants lived off the wild game and plants of the area, seasonally visiting the surrounding plains and mountains. About 2000 years ago, some of these people began to construct more permanent dwellings made of stone. With the coming of the Europeans, their lifestyle changed drastically, and they were forced onto reservations during the 19th century. During the ensuing historic period, Anglo and Hispanic settlers farmed and ranched the area. In 1942, the U.S. Army acquired the land, which is now used as an army headquarters and training ground. Field work for this project consisted of a cultural resource inventory of 842 acres, reevaluation of four previously recorded archeological sites, and evaluative testing of site 5EP2524 for eligibility assessment. The cultural resource inventory resulted in the location and recording of 16 archeological sites and 11 isolated finds. Artifacts observed on these sites date from the Late Archaic (1000 B.C.) to the early military historic period. The archeological site tested included a sparse surface artifact scatter, a historic road, and 21 boulder features. Test excavations showed that the boulder features, with three exceptions, are of military origin. Two boulder alignments are historic and predate the military acquisition, while a third feature may be of prehistoric origin. The earliest military artifacts found within the features suggest early 1960s use. A prehistoric cultural horizon that dated to 570 ± 50 before the present (B.P.) was identified in the test excavations at the site but outside of the boulder features. This discovery suggests the site has the potential to yield significant archeological information and is therefore determined to be eligible for nomination to the National Register of Historic Places.

TECHNICAL ABSTRACT

In 1996, archeological investigations were conducted by Fort Lewis College on the Fort Carson Military Reservation. Approximately 842 acres were inventoried for archeological and historical cultural resources. The inventory resulted in the identification and recording of 27 cultural properties, which include 10 prehistoric sites, 3 historic sites, 3 multiple component prehistoric and historic sites, and 11 isolated finds. Three of the archeological sites are determined to have the potential to yield important data on the prehistory of the Fort Carson Military Reservation and for south-central Colorado and are recommended eligible for nomination to the National Register of Historic Places. In addition to site inventory, one site, 5EP2524, was test excavated. This site is positioned on the south edge of a Pleistocene terrace above Little Fountain Creek. The site consists of a light scatter

of prehistoric flaked-lithic artifacts, an historic road, and 21 boulder features. Test excavations were conducted at the site to determine the origin of the boulder features and to evaluate the potential of the site to yield significant archeological information. Results of testing showed that two categories of boulder features are present at this site—linear features and circular features. Five circular features were tested. Several recent military artifacts were the only materials recovered from testing within the features. The earliest artifact recovered from within the circular features dates to the 1960s. These circular features are interpreted to be of military construction and use. The linear features are older than the circular features and possibly date to the later part of the 19th century or the early 20th century. Two types of linear features are present, stacked-stone walls and single-boulder alignments. Testing outside the boulder features, however, revealed a buried cultural horizon. A calibrated AMS date of 570 ± 50 B.P. was obtained from the buried horizon. Therefore, site 5EP2524 has produced data that has the potential to yield important information on the subsistence and settlement of the Fort Carson Military Reservation. It is recommended that the site be considered as eligible for nomination to the National Register of Historic Places.

ACKNOWLEDGMENTS

We thank our student field crew of the 1996 field season: Dan Hart, Kai Heidemann, Bonnie Hildebrand, Nikki Salazar, Franci Stagi and Amy Wise. Nikki Salazar and Sean Larmore consistently produced high-quality laboratory work and analysis. Most of the computer drafting and final report production was performed by Nikki Salazar whose professionalism and perseverance are greatly appreciated by all involved in the report production. The high-quality artifact illustrations are the work of Ewa Krakowska. Computer drafting of the 5EP2524 plan view was completed by Steve Dye.

We owe a special debt of gratitude to Melissa Connor, Anne Vawser and Doug Scott of the Midwest Archeological Center, for their assistance in helping us set up this project and for acting as such a good liaison with Army personnel. Anne Vawser instructed the crew in the use of Global Positioning System. A debt of gratitude is extended to the following persons from Range Control: Sergeant Hoffman, Sergeant Lundquist, Mr. Markel and Mr. Cluck. A special thank-you is extended to Mr. Berry for keeping us out of harm's way. Marilyn Mueller (Jones Technologies, Inc.) provided us with the necessary information to complete the assigned tasks. Finally, we sincerely thank Steve Chomko (DECAM) for his commitment to integrating educational needs and values into the management of archeological resources on federal land.

TABLE OF CONTENTS

FOREWORD	i
POPULAR ABSTRACTiii
TECHNICAL ABSTRACTiii
ACKNOWLEDGMENTS	v
LIST OF FIGURES	ix
LIST OF TABLES	xii
CHAPTER 1	
INTRODUCTION	1.1
CHAPTER 2	
BACKGROUND TO THE STUDY:	
THE NATURAL AND CULTURAL ENVIRONMENTS	
OF THE FORT CARSON MILITARY RESERVATION	2.1
Introduction	2.1
The Natural Environment	2.1
Climatic Variation	2.1
The Biotic Environment	2.2
Physiography	2.2
The Cultural Environment	2.9
The Regional Context	2.9
Front Range Prehistory	2.14
Fort Carson Prehistory	2.17
Fort Carson Ethnohistory and History	2.19
CHAPTER 3	
REVIEW OF PREVIOUS ARCHEOLOGICAL WORK	
IN THE FORT CARSON MILITARY RESERVATION	3.1
CHAPTER 4	
RESEARCH DESIGN AND OBJECTIVES	4.1
CHAPTER 5	
FIELD AND LABORATORY METHODS	5.1

Introduction	5.1
Field Methods and Techniques	5.1
Inventory	5.1
Evaluative Testing	5.6
Laboratory Methods and Techniques	5.8

CHAPTER 6

INVENTORY RESULTS	6.1
Introduction	6.1
Archeological Sites	6.1
5EP2520	6.7
5EP2521	6.7
5EP2522	6.9
5EP2523	6.13
5EP2524	6.16
5EP2526	6.16
5EP2527	6.19
5EP2528	6.21
5EP2532	6.24
5EP2533	6.25
5EP2535	6.27
5EP2539	6.27
5EP2547	6.31
5EP2548	6.31
5EP2550	6.34
5EP2551	6.36
Reevaluated Sites	6.38
5EP46	6.38
5EP48	6.38
5EP163	6.39
5EP165	6.40

CHAPTER 7

EVALUATIVE TESTING RESULTS, 5EP2524	7.1
Introduction	7.1
Site Description	7.1
Results of Eligibility Testing	7.3
Mapping and Surface Reconnaissance	7.3
Feature Descriptions	7.7
Subsurface Investigations	7.19
Shovel Tests	7.19
Test Unit Excavations	7.24
Laboratory Analysis	7.60

Discussion and Interpretation	7.64
Summary Discussion and Conclusion	7.66

CHAPTER 8

MANAGEMENT INFORMATION AND CONCLUDING

REMARKS	8.1
Introduction	8.1
Management Summary	8.1
Summary Discussion	8.2

REFERENCES CITED	9.1
-------------------------------	-----

APPENDICES

- Appendix I - Colorado State Site Forms, Isolated Find Forms, Reevaluation Forms
(Removed from public distribution)
- Appendix II - Report of Radiocarbon Dating Analyses

LIST OF FIGURES

Figure 1.1	Location map for Fort Carson Military Reservation, south-central Colorado.	1.2
Figure 1.2	Map of 1996 Inventory Area 1 (Rod and Gun Club)	1.4
Figure 1.3	Map of 1996 Inventory Area 2 (Duck Pond)for the proposed assault range	1.5
Figure 1.4	Map of 1996 Inventory Area 3 for the proposed assault range.	1.6
Figure 6.1	Site map, 5EP2520	6.8
Figure 6.2	Site map, 5EP2521	6.10
Figure 6.3	Site map, 5EP2522	6.12
Figure 6.4	Site map, 5EP2523	6.14
Figure 6.5	Projectile points collected from 5EP2523	6.15
Figure 6.6	Site map, 5EP2526	6.18
Figure 6.7	Site map, 5EP2527	6.20
Figure 6.8	Projectile point collected from 5EP2527.....	6.19
Figure 6.9	Site map, 5EP2528	6.23
Figure 6.10	Projectile points collected from 5EP2528.....	6.22
Figure 6.11	Site map, 5EP2532	6.26
Figure 6.12	Projectile point collected from 5EP2532.....	6.25
Figure 6.13	Site map, 5EP2533	6.28
Figure 6.14	Site map, 5EP2535	6.29
Figure 6.15	Site map, 5EP2539	6.30
Figure 6.16	Site map, 5EP2547	6.32

Figure 6.17	Site map, 5EP2548	6.33
Figure 6.18	Site map, 5EP2550	6.35
Figure 6.19	Photograph, 5EP2551	6.37
Figure 6.20	Projectile point collected from 5EP163.	6.39
Figure 7.1	Site map, 5EP2524	7.2
Figure 7.2	Area A, western portion of site 5EP2524	7.5
Figure 7.3	Area B, eastern portion of site 5EP2524	7.6
Figure 7.4	Plan view map, Feature 4, 5EP2524	7.9
Figure 7.5	Photograph of Feature 8, 5EP2524	7.11
Figure 7.6	Photograph of Feature 14, 5EP2524	7.13
Figure 7.7	Photograph of Feature 15, 5EP2524	7.14
Figure 7.8	Plan view map, Feature 16, 5EP2524	7.16
Figure 7.9	Plan view map, Feature 18, 5EP2524	7.17
Figure 7.10	Photograph of Feature 19, 5EP2524	7.18
Figure 7.11	Photograph of Test Unit 1, 5EP2524	7.26
Figure 7.12	West wall profile, Test Unit 1, 5EP2524	7.27
Figure 7.13	Photograph of Test Units 2 and 3, Feature 1, 5EP2524	7.28
Figure 7.14	Plan view and north wall profile, Test Units 2 and 3, Feature 1, 5EP2524	7.30
Figure 7.15	Plan view and north wall profile, Test Units 4 and 5, Feature 2, 5EP2524	7.32
Figure 7.16	Photograph of Test Units 4 and 5, Feature 2, 5EP2524	7.35
Figure 7.17	East wall profile, Test Unit 6, 5EP2524	7.36

Figure 7.18	West wall profile, Test Unit 7, 5EP2524	7.38
Figure 7.19	North wall profile, Test Unit 8, 5EP2524	7.40
Figure 7.20	North wall profile, Test Unit 9, 5EP2524	7.43
Figure 7.21	Plan view and south wall profile, Test Units 10 and 11, Feature 11, 5EP2524	7.45
Figure 7.22	East wall profile, Test Unit 12, 5EP2524	7.47
Figure 7.23	Plan view and north wall profile, Test Units 13 and 14, Feature 17, 5EP2524	7.49
Figure 7.24	Photograph of Test Units 15, 16, and 17, 5EP2524	7.56
Figure 7.25	East wall profile, Test Units 15 and 17, 5EP2524	7.57
Figure 7.26	North wall profile, Test Units 16 and 17, 5EP2524	7.58
Figure 7.27	Chalcedony scraper collected from the surface, 5EP2524	7.61
Figure 7.28	Sandstone chopper fragment, Level 5, Test Unit 8, 5EP2524	7.61

LIST OF TABLES

Table 2.1	Generalized Bedrock Lithology, Fort Carson Military Reservation . . .	2.4
Table 6.1	Descriptive Data for Archeological Sites Recorded by Fort Lewis College, 1996.	6.2
Table 6.2	Descriptive Data for Archeological Sites Reevaluated by Fort Lewis College, 1996	6.4
Table 6.3	Descriptive Data for Isolated Finds Recorded by Fort Lewis College, 1966	6.5
Table 6.4	Nontool Flaked-Lithic Debitage from a Sample Transect, 5EP2522.	6.11
Table 6.5	Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2523	6.16
Table 6.6	Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2526	6.17
Table 6.7	Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2527.	6.21
Table 6.8	Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2528.	6.24
Table 7.1	Shovel Test Results, 5EP2524	7.20
Table 7.2	Test Unit Results, 5EP2524	7.24
Table 7.3	Results of Test Unit 1, 5EP2524	7.25
Table 7.4	Results of Test Units 2 and 3, 5EP2524	7.29
Table 7.5	Results of Test Units 4 and 5, 5EP2524	7.33
Table 7.6	Results of Test Unit 6, 5EP2524	7.35
Table 7.7	Results of Test Unit 7, 5EP2524	7.37
Table 7.8	Results of Test Unit 8, 5EP2524	7.39
Table 7.9	Results of Test Unit 9, 5EP2524	7.42
Table 7.10	Results of Test Units 10 and 11, 5E2524	7.44

Table 7.11	Results of Test Unit 12, 5EP2524	7.47
Table 7.12	Results of Test Units 13 and 14, 5EP2524	7.50
Table 7.13	Results of Test Units 15, 16, and 17, 5EP2524	7.52
Table 7.14	Nontool Flaked-Lithic Debitage from Test Units 15, 16, and 17	7.53
Table 7.15	Subsurface Nontool Flaked-Lithic Debitage Assemblage, 5EP2524	7.62
Table 7.16	Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2524	7.62

CHAPTER 1

INTRODUCTION

In 1996, Fort Lewis College (FLC) continued an existing cooperative agreement with the National Park Service, Midwest Archeological Center (MWAC) to conduct a cultural resource inventory within a section of the Cheyenne Mountain United States Geological Survey 7.5' quadrangle and south of the Rod and Gun Club, in the Fort Carson Military Reservation (FCMR), El Paso County, south-central Colorado. The second project objective was to record and test site 5EP2524, previously identified by army personnel as having the potential to yield important information on the prehistoric settlement of the FCMR. During cursory examination of the site by army archeologists, several circular boulder features were recognized along with a light scatter of flaked-lithic artifacts. These features resemble, in size and shape, others found on sites in south-central Colorado that belong to the Late Prehistoric Period. Therefore, it was believed that the site might possess the potential to yield significant information on architectural prehistoric sites from Fort Carson of which there are few (Zier et al. 1987: 2-33-34). Immediate to our field work project objectives were amended to include a cultural resource inventory for a proposed assault range in the Timber Mountain United States Geological Survey 7.5' quadrangle, besides the previously described objectives.

Fort Carson Military Reservation is in south-central Colorado (Figure 1.1) and encompasses 215 square miles (137,400 acres), which straddles El Paso, Pueblo, and Fremont Counties. Fort Carson Military Reservation was established in 1942; and is currently home to the 3rd Armored Cavalry Regiment, the 10th Special Forces Group, the 43rd Area Support Group, and the 3rd Brigade Combat. Under U.S. Army Regulation AR200-4, the installation is required to identify National Register-eligible properties and to allow consideration of potential impacts of federal actions on such properties. Because of the nature of current land use (e.g., mechanized maneuvers, infantry training, artillery training, flight training), there is the potential for damage to the cultural resources on the reservation. The purpose of the current project was to identify, record, and make eligibility recommendations on cultural properties within selected portions of the FCMR, to visit sites previously assessed as eligible properties that lay within the proposed assault range, and to conduct evaluative testing at site 5EP2524.

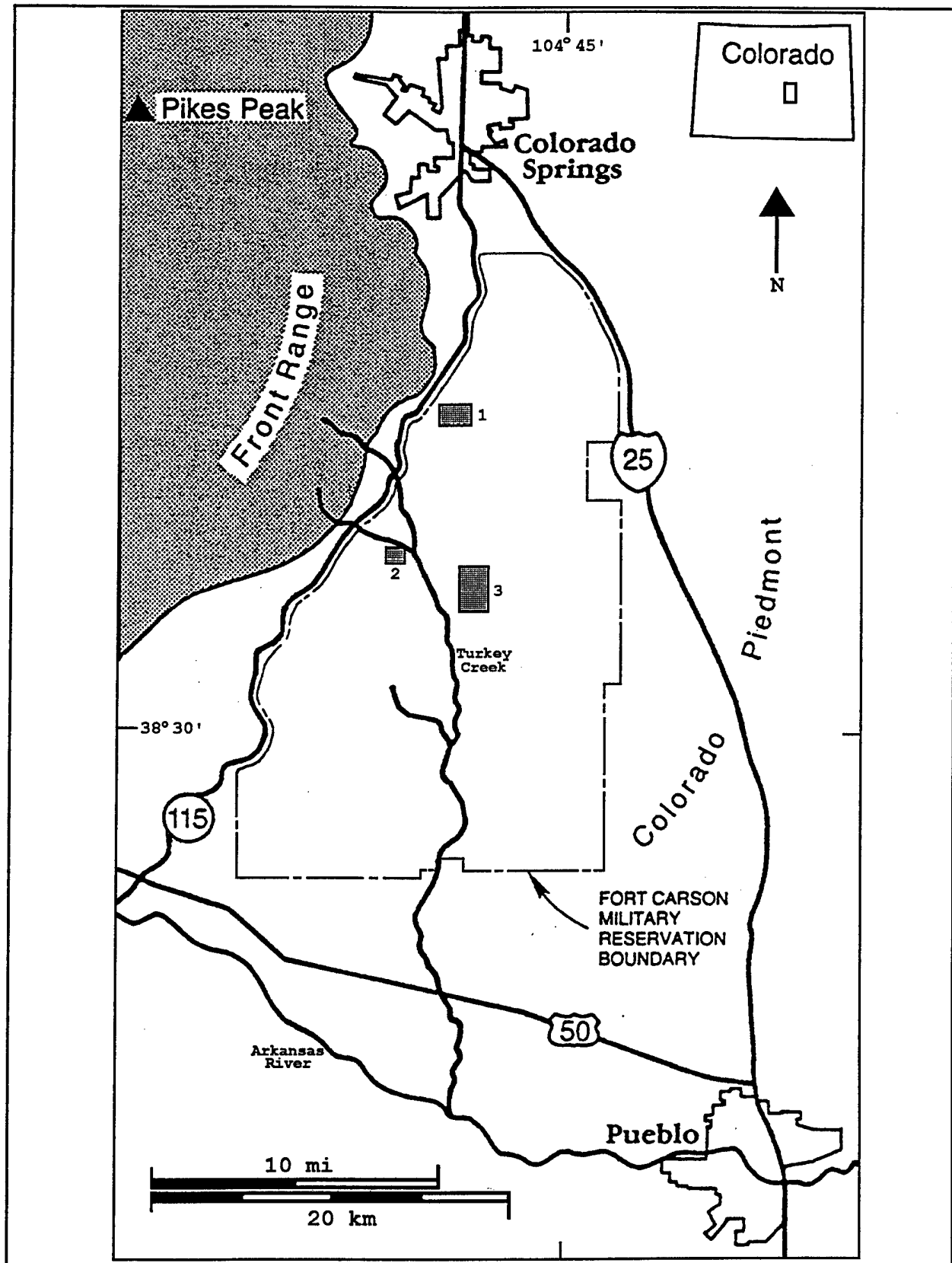


Figure 1.1 Location map for Fort Carson Military Reservation, south-central Colorado. Map adapted from Zier et al. (1966: Figure 1:3).

The three areas in El Paso County are illustrated in Figures 1.2 through 1.4, and include portions of U.S.G.S 7.5' quadrangle maps Cheyenne Mountain and Timber Mountain.

A total of 842 acres of the FCMR was inventoried for cultural resources by Fort Lewis College. Additionally, six previously recorded sites in the proposed assault range were revisited and reevaluated. The inventory resulted in the identification and recording of 27 cultural properties that include 10 prehistoric sites, 3 historic sites, 3 multiple-component prehistoric and historic sites, and 11 isolated finds. Three of the archeological sites are determined to have the potential to yield important data and are recommended eligible for nomination to the National Register of Historic Places (NRHP).

Finally, test excavations were conducted at archeological site 5EP2524, south of the Rod and Gun Club. The purpose of testing was to uncover the origin of a series of enigmatic boulder features recognized from the surface. Field and laboratory results provided data that suggested that these boulder features are of recent historic military constructions; however, a buried ethnostratigraphic unit was identified in test units outside the boulder features. The site is determined to have the potential to yield significant information and, therefore, it is recommended as eligible for nomination to the NRHP.

Fieldwork commenced on May 19 and continued for three ten-day sessions, each separated by four-day breaks. Fieldwork concluded on June 27th. Dr. Philip Duke served as the Principal Investigator, Mona Charles as the Project Director, and Randy Nathan as the Assistant Director. Other than these three professional archeologists, who served in supervisory roles, project personnel consisted entirely of student archeologists from Fort Lewis College. The public interest was well served by the participation of Fort Lewis College students in this project. Students gained valuable practical experience in all facets of archeological research: from field inventory and the use of GPS technology, to laboratory analysis and report preparation. This experience materially contributed to the educational mission of Fort Lewis College. The resulting additions to the archeological knowledge of this part of the state benefits the public in that it helps preserve valuable cultural resources and increases awareness of the rich prehistoric and historic cultural legacy of the nation in general.

The purpose of this report is to present the findings of the cultural resource inventory, provide recommendations for the management of each resource recorded during the survey, provide recommendations on six previously recorded sites, and present the results of the evaluative testing of site 5EP2524. Chapter 2 synthesizes the natural and cultural settings of Fort Carson and of the survey areas, so that the findings of this survey can be placed into an appropriate management and research perspective. Chapter 3 reviews previous archeological work conducted on the military reservation, while Chapter 4 outlines the goals for this project within the larger research objectives of Fort Carson. Field and laboratory methods used in this project are described in Chapter 5. Inventory results are presented in Chapter 6, and Chapter 7 discusses the results from the evaluative testing of site 5EP2524. Concluding remarks and a summary discussion complete the report.

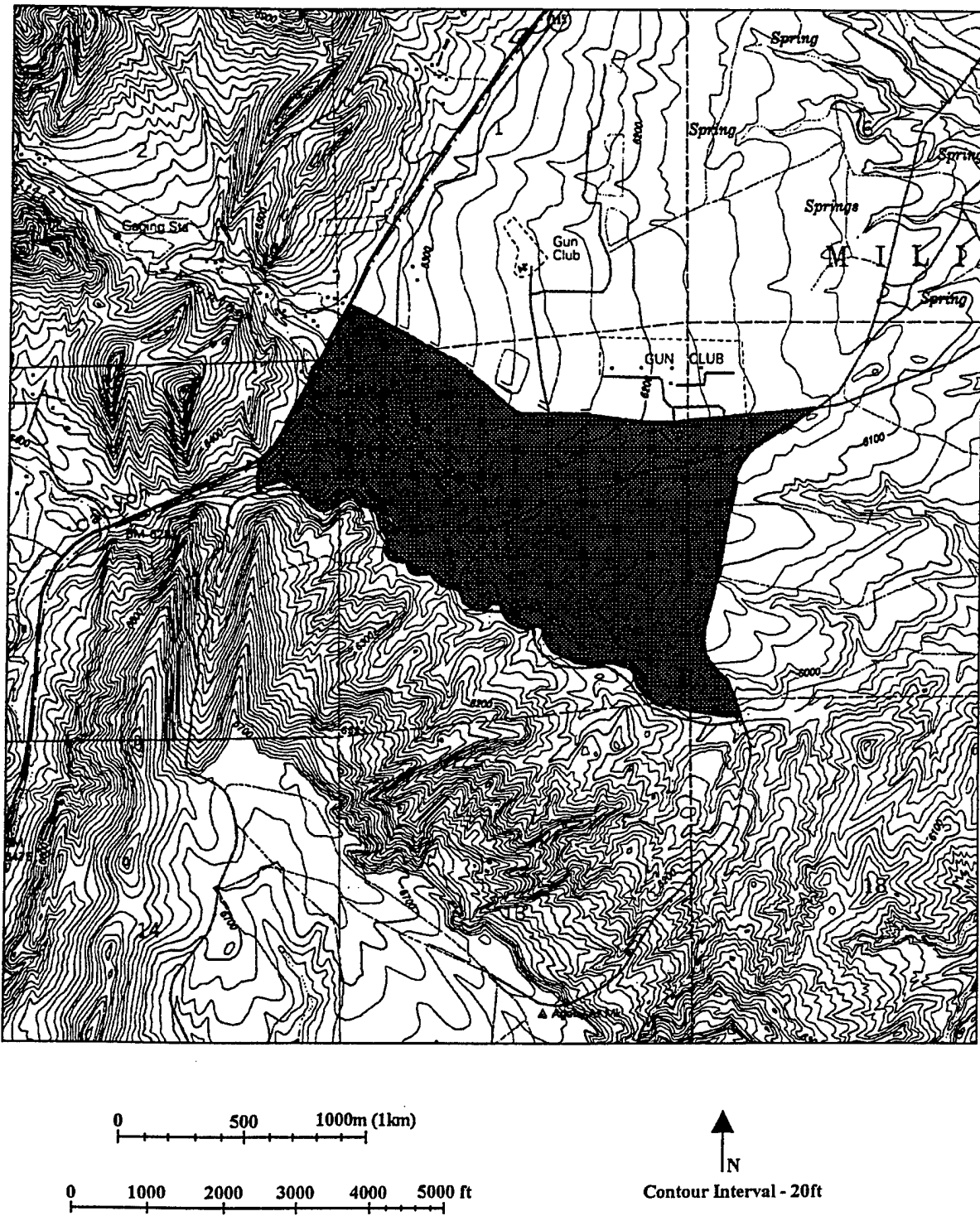


Figure 1.2 Map of 1996 Inventory Area 1 (Rod and Gun Club). Shaded areas designate areas inventoried by Fort Lewis College in the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle.

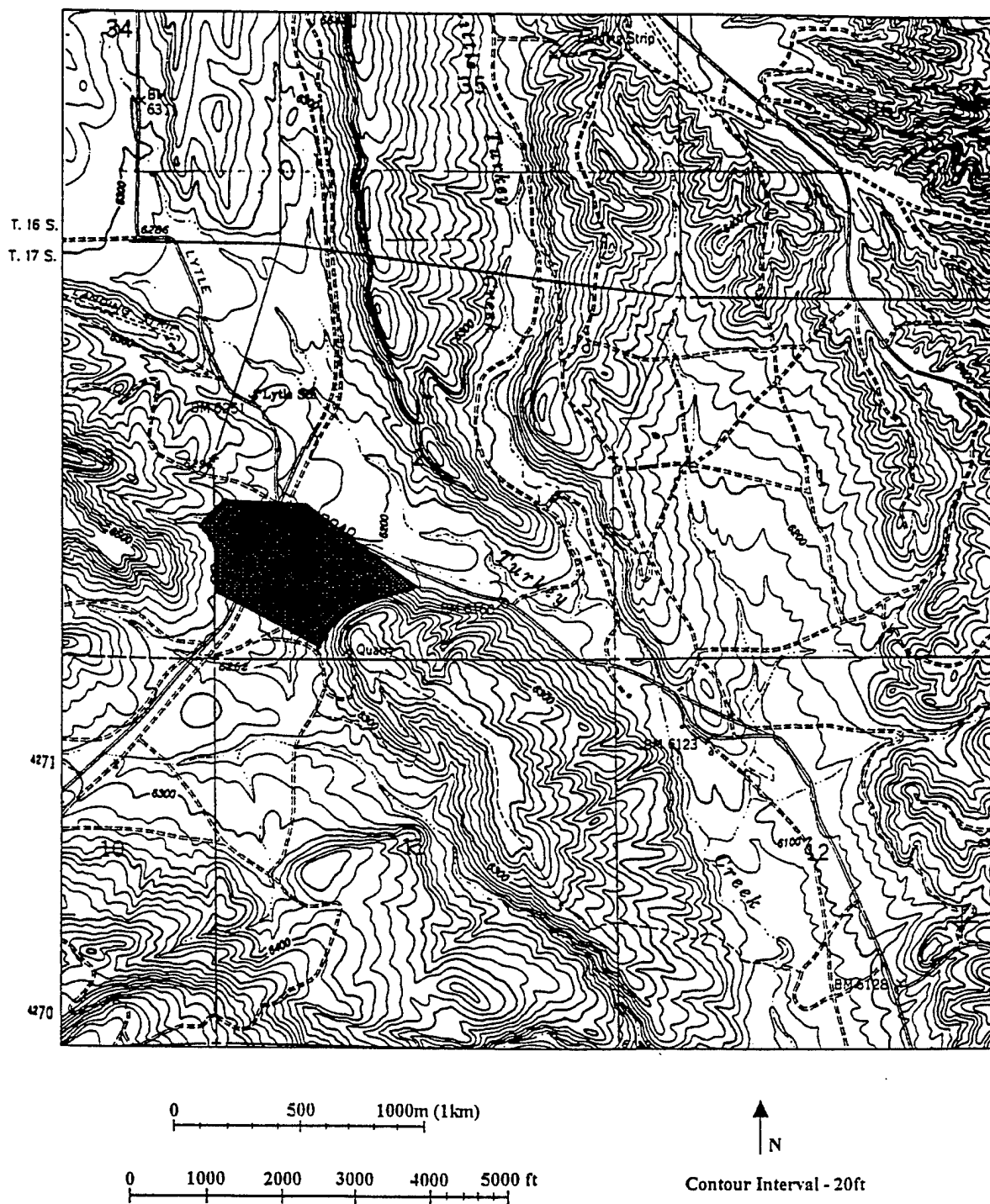


Figure 1.3 Map of 1996 Inventory Area 2 (Duck Pond) for the proposed assault range. Shaded areas designate areas inventoried by Fort Lewis College in the Timber Mountain, United States Geological Survey, 7.5' quadrangle.

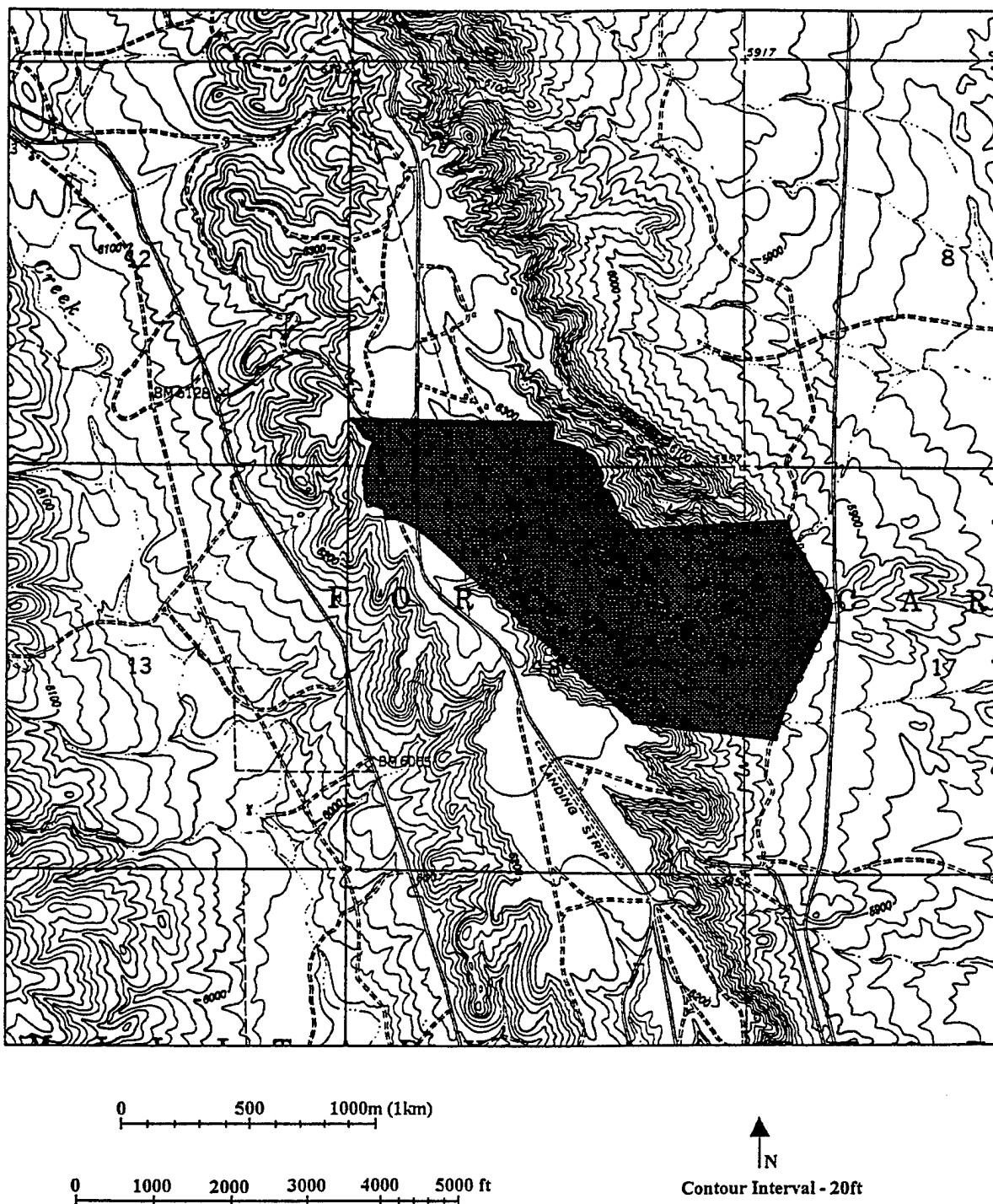


Figure 1.4 Map of 1996 Inventory Area 3 for the proposed assault range. Shaded areas designate areas inventoried by Fort Lewis College in the Timber Mountain, United States Geological Survey, 7.5' quadrangle.

CHAPTER 2

BACKGROUND TO THE STUDY: THE NATURAL AND CULTURAL ENVIRONMENT OF THE FORT CARSON MILITARY RESERVATION

INTRODUCTION

The purpose of this chapter is to present synopses of the natural and cultural environments of the FCMR, so that the reader can place the Fort Lewis College work into a better perspective. It relies on, but is not intended to replace, the excellent syntheses provided by Anderson (1990), Athearn (1985), Cassells (1983), Eighmy (1984), Guthrie et al. (1984), Mehls and Carter (1984), and Zier et al. (1987), to which the reader is referred for more detailed and specific information.

THE NATURAL ENVIRONMENT

Climatic Variation

The climate of the reservation is classified as a mid-latitude, semi-arid continental with sharp seasonal variations. Summers are long and warm; winters are short and occasionally very cold. July has mean annual highs of 88° F (31° C). January is the coldest month, with a mean low of 15° F (-9° C). Precipitation is erratic and mainly falls as heavy thunderstorms during the summer (April to September) months (Zier et al. 1987:1-13). The average precipitation is 17.5 inches.

Two models for ancient climatic patterns in North America are commonly used by archeologists. The first, proposed by Antevs (1955), envisages climatic change as slow and gradual. Consequently, he defined only three major climatic episodes for the Holocene (or Neothermal, in his nomenclature): (1) Anathermal (10,150-7000 B.P.), (2) Altithermal (7000-4500 B.P.), and (3) Medithermal (4500 B.P.- present).

Antev's general model has been augmented by one based on the European Blytt-Sernander model, which identifies short periods of climatic stability, or dynamic metastable equilibrium, interrupted by rapid changes to new stable states (Wendland and Bryson 1974; Wendland 1978). The episodes are as follows: (1) Late Glacial - 13,000-10,030 B.P., (2) Pre-Boreal - 10,030- 9300 B.P., (3) Boreal - 9300-8490 B.P., (4) Atlantic - 8490-5060 B.P., (5) Sub-Boreal - 5060-2760 B.P., (6) Sub-Atlantic - 2760-1680 B.P., (7) Scandic - 1680-1260 B.P., (8) Neo-Atlantic - 1260-850 B.P., (9) Pacific - 850-400 B.P.,

(10) Neoboreal (Little Ice Age) - 400-100 B.P., and (11) Recent - 100 B.P. - present. There is, however, much regional variation in the dating and severity of these episodes because of their transgressive nature (Wilson 1988), and, therefore, local studies are necessary for any intensive study of human-environment relationships.

THE BIOTIC ENVIRONMENT

Three vegetation groups are found in the reservation. They are coniferous forest, scrub, and grassland (Dames and Moore 1978). The first is characterized by ponderosa pine, piñon, juniper, and Gambel's Oak. This group is found primarily in the Booth Mountain and Sand Canyon areas. The second is represented mainly by piñon-juniper stands, sometimes with a Gambel's Oak understory. Species such as blue grama and buffalo grasses are found mainly on the reservation's eastern edge.

Fauna is typical of the transitional nature of the reservation's location between plains and mountains. Historically, large mammals included bison, elk, both mule and white-tailed deer, antelope, bear, mountain lion, bobcat, and wolf. Smaller animals such as coyote, fox, beaver, jackrabbit, cottontail, skunk, and an assortment of squirrels and rodents frequent the area. A variety of raptors are present, as well as rattlesnake and other less dangerous reptiles (Zier et al. 1987:1-15-16). Perhaps the most important prehistoric economic resource was the bison (*Bison bison bison*). It provided aboriginal groups with food, and materials for clothing, utensils, glue, bindings, and tipi covers (Roe 1951; McHugh 1958).

PHYSIOGRAPHY

The FCMR is at the zone of contact between the Great Basin and the Southern Rocky Mountain physiographic provinces (Fenneman 1931). It is located in the southern part of the Colorado Piedmont of the Great Plains and adjacent to the foothills of the Front Range. This location gives it great elevational range, from approximately 5600 ft (1707 m) asl at the reservation's eastern boundary, to 6500 ft (1981 m) asl at its western boundary. Five distinct physiographic areas occur in Fort Carson: 1) the plains, 2) the low foothills, 3) the high foothill ridges, 4) the valley within the high foothill ridges, and 5) the high benches (Evanoff et al. 1996).

Geology and Geomorphology

The discussion of the geology and geomorphology of the FCMR is synthesized from several major resources that include geological maps (Gilbert 1897; Scott 1975; Scott et al. 1978; Tweto 1979) and specific regional reports (Dames and Moore 1978; Evanoff et al. 1996; Jepson et al. 1992; Van Ness et al. 1990; Zier and Kalasz 1985). The maps are useful for regional coverage of the bedrock lithology and structure of the FCMR and surrounding areas, while specific information on the local lithology and geomorphology is available in the reports cited above. Interpretations of the Pleistocene and Quaternary geological history are compiled from research along Turkey Creek (Madole 1989; 1990; Zier 1989; Zier and

Kalasz 1991), and in areas surrounding Fort Carson (Benedict 1973, 1979; Holliday 1987; Madole et al. 1988).

Definitions for geological stratification used in this report follows those of the North American Stratigraphic Code (Prothero 1990):

Formation is the basic lithostratigraphic unit in geology. A formation is a stratigraphic unit with internal characteristics distinguishing it from adjacent stratigraphic units above and below. It must be mappable at the surface and traceable below the surface. Two or more formations comprise a group.

Members are subdivisions of formations. Formations may consist of several members, but it is not necessary for a formation to consist of members.

Bed is a distinctive horizon marker. A volcanic ash layer is an example of a bed.

Bedrock Geology Geologic bedrock of the FCMR is mostly composed of sedimentary rocks ranging in age from Pennsylvanian through Cretaceous (Table 2.1). Because the 1996 survey inventory was in areas of low terrain, the formations and members exposed in these areas are no older than the Lower Upper Cretaceous. Individual formations and members that outcrop in the immediate project vicinity are described below.

Cretaceous

Lower Upper Cretaceous

Greenhorn Limestone (three members)

Bridge Creek Limestone Member - interbedded, fossiliferous limestone and limey shale.

Hartland Shale Member - light gray limey shale with thin beds of Bentonite.

Lincoln Limestone Member - limey shale with platy limestone beds near base and top.

Carlisle Shale (four members)

Juana Lopez Member - calcrete.

Codell Sandstone Member - thin lenses of dark limestone interbedded with a limey shale near top, dense near-black fossiliferous limestone at base.

Blue Hill Shale Member - dark fissile shale with concretions.

Fairport Chalk Member - tan to black chalky, calcareous shale.

Table 2.1. Generalized Bedrock Lithology, Fort Carson Military Reservation.

System	Series	Formation	Member	Physical Description
Quaternary	Holocene	Alluvium		Gray, poorly sorted stony sand and silt forming flood plain
		Landslide debris		Earth flows, debris flows on steep slopes (Holocene and Pleistocene)
	Pleistocene	Eolian sands		Fine to coarse windblown sand (Holocene and Pinedale glaciation)
		Louviers alluvium		Thin gravelly deposits on terraces 70' (21m) above streams on plains
		Slocum Alluvium		Weathered gravel on cut surface 100' (30m) above modern streams (Sangamon Interglaciation or Illinois)
		Verdos Alluvium		Weathered gravel on cut surface 200-250' (60-75m) above modern streams (Yarmouth Interglaciation or Kansas Glaciation)
		Rocky Flats Alluvium		Weathered gravel on cut surface 350' (105m) above modern stream (Aftonian interglaciation or Nebraskan glaciation)
Tertiary	Absent	Nussbaum Alluvium		Weathered gravel on pediment 450' (96-108m) above stream (Nebraskan glaciation)
		Pierre Shale		Predominantly siltstone and claystone. Contains sandstone and sandy shale near top and bottom. Limestone masses forming conical buttes near middle, and fossiliferous concretions throughout. Thickness near 3900' (1170m)
Cretaceous	Upper Cretaceous	Niobrara	Smoky Hill Shale Member	Yellowish-gray, fossiliferous, calcareous shale and silty limestone
			Fort Hays Limestone Member	Beds of chalk 0.15 to 1 m thick separated by beds of dark-gray chalky shale 2.5-52cm thick
		Carlile Shale	Juana Lopez Member	Calcrete
			Codell Sandstone Member	Upper part is thin lenses of dark limestone interbedded with a limey shale. Basal 0.75 to 1 m is a dense, near-black, fossiliferous limestone
			Blue Hill Shale Member	Dark fissile shale with large calcareous concretions

System	Series	Formation	Member	Physical Description
Cretaceous		Greenhorn Limestone	Fairport Chalk Member	Tan to black, chalky, calcareous shale
			Bridge Creek Limestone Member	Interbedded, fossiliferous limestone and limy shale
			Hartland Shale Member	Light gray limy shale with thin beds of Bentonite
			Lincoln Limestone Member	Limy shale with platy limestone beds near base and top
	Lower Cretaceous	Graneros Shale		Dark gray to black, fissile, noncalcareous shale, with two beds of dense, dark limestone
		Dakota Sandstone		Yellowish brown, cross-bedded cliff-forming sandstone
		Purgatoire Formation	Kiowa Shale Member	Fossiliferous, marine, dark-gray, claystone, siltstone and sandstone
Jurassic	Upper Jurassic	Morrison Sandstone	Cheyenne Sandstone Member	Massive white to yellowish brown, cross-bedded sandstone
				Varicolored claystone, brown weathering sandstone and gray sandstone
		Ralston Creek Formation		Greenish gray claystone, gray limestone with jasper and agate
		Lykins		Red siltstone, claystone, and sandstone about 180' (55m) thick
Triassic				
Permian		Lyons Sandstone		Red sandstone forming two resistant ledges 700 - 800' (210-240m) thick
Pennsylvanian		Fountain Formation		Red conglomerate and sandstone
			Glen Eyrie Shale Member	Sandstone, sandy shale, and black fossiliferous shale

Upper Upper Cretaceous

Niobrara (two members)

Smoky Hill Shale Member - interbedded yellow gray, fossiliferous, soft calcareous shale and thin layers of silty limestone.

Fort Hayes Limestone Member - gray, hard dense limestone beds, source of cement and smelter limestone.

Pierre Shale Predominantly siltstone and claystone with sandstone and sandy shale near the top and bottom. Limestone masses form conical buttes near middle and fossiliferous concretions throughout.

Quaternary

Pleistocene

Nussbaum Alluvium Weathered gravels on pediments and terraces 450 ft (96-108 m) above the valley streams and associated with the Nebraskan glaciation.

Rocky Flats Alluvium Weathered gravels on cut surfaces 350 ft (105 m) above modern streams, associated with the Nebraskan glaciation or the Aftonian interglaciation.

Verdos Alluvium Weathered gravels on cut surfaces 200 - 250 ft (60 - 75 m) above the present streams. Large bouldery cobbles near mountain front decrease in size away from the mountains. Many weathered stones mostly of granite, quartz, and feldspar occur in this deposit. In the upper part calcium carbonate accumulation is high where erosion has not removed the sediments. Elsewhere, local volcanic beds thought to be as much as 60,000 years old are interbedded in the gravels. Thickness of the deposits average about 4.5m. These gravels are generally associated with the Yarmouth interglaciation or Kansas glaciation.

Slocum alluvium Weathered gravels on cut surface 100 ft (30 m) above the modern streams are moderately reddish brown, poorly sorted, moderately compacted, stratified gravels containing layers of clay, silt and sand, and clay balls derived from shaley bedrock. The upper part of most deposits, where they have not been eroded, contains abundant calcium carbonate. Thickness of the deposit may be as much as 40 ft (12 m). Permeability is high in the gravels, but generally low in the clayey and silty layers. Excavation and compaction are generally easy except in bouldery deposits. The deposit is a source of sand, gravel,

	and boulders. It is associated with the Sangamon interglaciation or the Illinois glaciation.
Louviers alluvium	Weathered gravels in thin deposits on terraces 70 ft (21 m) above the streams on the plains.
Eolian Sand	Fine to coarse wind blown sand of Holocene and Pinedale glaciation age. No eolian sand was observed in the project areas.
Landslide debris	Debris flow and earth flow detritus on steep slopes, Holocene and Pleistocene in age. Landslide debris was not observed in the project areas.

Holocene

Alluvium	Gravelly, poorly sorted stony sand and silt form the flood plains of the modern streams.
----------	--

Structure The topography of the FCMR is largely the result of uplift, folding, and downwarping during the Late Cenozoic when block faulting and uplift were accompanied by volcanic activity over most of the Front Range. Sediments that had eroded from the rising Front Range were carried onto the Great Plains to the east and into intermontane basins to the west (Madole 1990:110). During the Miocene, accelerated uplift resulted in intensive canyon cutting in the mountains and erosion of the softer sediments (Ogallala Formation) from adjoining basins. The Colorado Piedmont, a physiographic entity, was shaped at this time. The Colorado Piedmont is topographically lower than the surrounding regions because the surface was stripped of the Miocene fluvial rocks that cover most of the adjoining Great Plains.

In the FCMR, the sedimentary rocks were warped through folding and plunge to the southeast, where they merge with the plains some 20-30 km from the Front Range. Four anticlines (upwarps) separated by three synclines (downwarps) occur in the southwest half of Fort Carson. These include three named folds: The RedCreek/Turkey Creek Anticline, the County Line Syncline, and the Wild Horse Anticline (Evanoff et al. 1996:8-9). All these folds were compressed in an east and west direction, which has produced elongated features with north to north-northwest axial lines. Booth Mountain and Timber Mountain are the topographic expressions of the Red Creek/Turkey Creek anticline. Turkey Creek and Booth Gulch mark the position of the synclines.

Hydrology The major drainages in the FCM Reservation are—from north to south—Rock Creek, Little Fountain Creek, and Turkey Creek. The streams in Fort Carson drain either to the east into Fountain Creek or to the Arkansas River to the south. The unnamed mesa in the proposed ground-assault range (Figure 6.1) forms part of an upper drainage divide between the Turkey Creek drainage, which flows to the south, and the drainages which flow east into Fountain Creek. This unnamed mesa is the last topographic relief before the flat Plains to the east. Turkey Creek follows the trend of the Turkey Creek syncline. The Turkey Creek valley was established during the Cenozoic. Ancestral Turkey

Creek eroded the fluvial Tertiary rocks until its course was lowered onto the folded Mesozoic rocks. At this point, the stream course took the path of least resistance, eroding into the softer Upper Cretaceous shales and claystones. Eventually the channel was lowered onto resistant Dakota Sandstone. The superposition of the channel onto the eastward-dipping Dakota Sandstone resulted in the formation of Turkey Canyon (Madole 1990). Steep sandstone cliffs on both sides of Turkey Creek Canyon provide suitable locations for prehistoric shelters and smooth cliff faces for rock art.

Holocene History The Holocene geological history of the project area in particular has not been documented. However, Madole (1989, 1990) hypothesized a generalized Holocene history for the Turkey Creek drainage, which is based on a paleoclimatic model of general atmospheric-circulation experiments and early Holocene paleoenvironmental data collected from other sites in the region. The alluvial stratigraphy of Turkey Creek was recorded by Madole (1989), who provided a geoarcheological synthesis for the Recon John Shelter. Madole's interpretations are summarized below.

Three lithostratigraphic units are identified in the Turkey Creek alluvium: a basal gravel unit (Unit 1); a sand unit consisting of two members (Unit 2); and a poorly sorted, gravelly alluvium (Unit 3).

Although dates for Lithostratigraphic Unit 1 are not known, the unit was probably deposited during the early to mid Holocene. A total thickness of the unit is not known, but it is as much as 4 m thick. The lower 0.5 m to 1 m consists of clast-supported coarse gravel. These basal gravels may be of Pleistocene age, although the possibility exists that the gravels represents reworked Pleistocene deposits. The gravels are mostly pebble to cobble size, with local exposures of boulders ranging from 25 cm to 75 cm in diameter. Most of the gravels are Precambrian granitic and gneissic rock, and Dakota Sandstone. The intercalated sand and silty beds and lenses were probably deposited in or near paleochannels. The basal gravels are conformably overlain by 2.5 m to 3 m of poorly sorted clayey and silty sand. The distinctive reddish hue and coarse columnar structure distinguish the top of Unit 1 from the bottom of Unit 2. To a large degree the reddish hue is a result of the parent materials; the sediments are derived mainly from Fountain Formation and Lykins Formation redbeds. A thick but weakly developed soil marks the contact between Unit 1 and Unit 2. This soil consists of an A/C horizon in which the A horizon is cumulative. The A soil horizon varies in thickness considerably among locations. This variable thickness is a result of differential soil formation processes and degradation within the valley floor. In places the contact between the top of the soil and the overlying Unit 2 is undulating and occasionally marked by stone lines. These boundary features suggest a period of erosion after landscape stability and before the deposition of Unit 2. Radiocarbon assays on detrital charcoal from a section near the top of Unit 1 at the Recon John shelter produced ages of 4050 ± 120 B.P. and 4400 ± 80 B.P. (Zier 1989).

Lithostratigraphic Unit 2 unconformably overlies Unit 1 across most of the valley floor. Unit 2 consists of two subunits; a lower grayish brown to brown calcareous sand that grades downward to a basal sand. The lower portion of the unit is thicker and more extensive than the upper portion. The stratum ranges from 25cm along the valley margins to 1.6m in paleochannels along the valley axis and in small alluvial fans and rills emanating from the valley sides. Typically, however, the entire unit is less than 75cm thick. Well-stratified beds of sand and silty sand are interspersed throughout the unit.

Besides sediments in the lower portion of the unit being generally coarser and better sorted than those in the upper portion and exhibiting slight color differences, the two subunits are distinguished chiefly by the degree of pedogenesis. The upper, younger soil is characterized by an A/C profile. The A horizon in the lower soil, although weakly developed, is relatively thick (30 - 40 cm). This younger soil consists only of a thin A horizon (5 - 6 cm) and has little to no pedogenic structure. This younger soil is currently exposed at the surface along Turkey Creek. Contact between the two soils suggests a brief period of landscape stability followed by a period of aggradation with a return to landscape stability. Radiocarbon dates from the older part of Unit 2 at Recon John Shelter range in age from 2000 to 1000 B.P. (Zier 1989). The weak soil structure of the younger soil in Unit 2 suggests that a brief period of landscape stability elapsed since deposition of the unit ceased. Madole (1990) estimates that deposition of the younger part of Unit 2 correlates with an episode of deposition that occurred between about 800 and 100 B.P. in drainage basins from southern Utah and western Oklahoma. This period of deposition is believed by Madole (1990:108) to have ceased in Turkey Creek between 150 and 100 years ago.

THE CULTURAL ENVIRONMENT

The location of Fort Carson in the foothills of the Rocky Mountains means that prehistoric populations undoubtedly had cultural ties to, and were influenced by, contemporary cultures in the adjacent plains and mountains. There is even evidence that at certain times during prehistory southeastern Colorado was influenced by cultures of the American Southwest.

The Regional Context

To place Fort Lewis College's work at Fort Carson in context, the following section briefly reviews the archeology of both the plains and the mountains (in particular the Front Range). It draws on historical overviews provided by Frison (1973), Wedel (1983), and Duke and Wilson (1995a) for the Plains, and Cassells (1992) for the mountains, and from others referenced as appropriate.

Plains archeology was a relatively late entry into American anthropology, probably for two reasons. First, it lacked the monumental architecture and the sophisticated and well-

preserved technologies that had attracted early students to places like the Southwest. Secondly, influential early anthropologists, from Clark Wissler to Alfred Kroeber, had declared the region uninhabitable before the acquisition of the horse (Frison 1973:151).

Throughout the 1920s, archeologists began working in the Plains. However, there were still no systematic investigations or excavations, and some strange theories still prevailed: for example, the supposed Welsh influence on the Mandan of the Middle Missouri region (Frison 1973). This attitude changed in the 1930s as a result of the number of early human discoveries found in the area, which put Plains archeology in the forefront of this study. Sites like Lindenmeier and Dent in Colorado, together with Clovis and Folsom in New Mexico, were discovered in this decade. During this same decade, theoretical contributions from Strong, Wedel, and Krieger helped Plains archeology gain a national stature (Duke and Wilson 1995a:3), and for a while the Plains became a "high-status" area of study.

The second boost to Plains archeology resulted from the threatened loss of thousands of archeological sites in the Missouri River floodplain through reservoir construction for recreation, storage, and hydroelectric facilities. Surveys to locate and record these sites began in 1946 under the direction of the Smithsonian Institution, with field headquarters at the University of Nebraska. The final survey was completed in 1968; massive data banks were produced, and a regional culture history was constructed. Plains archeology was for a critical part of its life dominated by salvage archeology concerns (Lehmer 1971; Frison 1973). Government involvement in Plains archeology became even greater in the 1960s with the onset of the modern era of cultural resource management. However, because large portions of the Plains are privately-owned and therefore not under the jurisdiction of federal conservation laws, the importance of archeological studies of large federally owned areas such as the FCMR becomes especially great.

Despite the early important theoretical contributions of Plains archeologists like William Duncan Strong (1935) and Waldo Wedel (1936), Plains archeology has never flirted with archeological theory for its own sake. Rather, it has been dominated by the practical necessities of dating sites and erecting spatio-temporal frameworks (Duke and Wilson 1995a), although elements of processualism have become important mainstays of contemporary Plains archeology, whether it is Ahler (1970), Calabrese (1972), Johnson (1988), Bamforth (1988), or Kelly and Todd (1988). Even postprocessual studies have made their way onto the Plains (Duke and Wilson 1995b). The advocacy of particular theoretical paradigms seems, however, to have been driven primarily by the need to understand the prehistory of the Plains, as opposed to Plains data being used merely as a testing ground for proposed theoretical contributions to the discipline at large.

The cultural taxonomies and classifications used for the southern Colorado Plains are implicit amalgamations of taxonomic systems proposed by McKern (1939), and Willey and Phillips (1958). Thus, we note the interchange of McKern's "focus" and Willey and Phillips's

"phase" throughout much Plains archeological writing (see also Chomko et al. 1990:9). The terms stage and period have also become virtually synonymous. This confusion is particularly apparent in discussion of the Archaic—a confusion fueled by the use of the term "Archaic" by Frison (1978) for the Middle Prehistoric Period. While this interchange is acceptable for Wyoming, where the Altithermal of the early Middle Prehistoric Period created the need for *Archaic-stage* adaptations, it is less applicable elsewhere in the northern Plains, where a commitment to large-animal hunting may have continued unabated, despite the stress caused by Altithermal climatic deterioration.

It is fair to say that the processes behind the patterns that constitute the culture-historical sequences of southeastern Colorado are still essentially unknown. For example, although lengthy discussions on the (dis)similarities between projectile points and other diagnostic materials have been made by numerous workers (e.g. Gunnerson 1987), there has been less discussion on whether these patterns are the result of migration, diffusion, or other cultural factors. Projectile-point styles seem to represent distinct horizon styles that crosscut other cultural boundaries, and it is apparent that an adequate understanding of the area's prehistory cannot be completed until these variables have been evaluated.

Eighmy (1984:10) has divided the chronology of southern Colorado into four periods, and we apply these to the Fort Carson area: Paleo Indian, Archaic, Ceramic, and Protohistoric/Historic. We have excluded discussion of the pre-Paleo Indian period, as defined by Krieger (1964), because of its absence thus far in this part of Colorado.

Paleo Indian Period The Paleo Indian period, which dates from approximately 12,000 B.P. to 7500 B.P., is a well-documented phenomenon in the Colorado Plains, this area producing some of the most significant finds of that period. The Period straddles the transition from terminal Pleistocene to early Holocene environments with an accompanying change in fauna and flora. It is typified by nomadic hunters and gatherers, concentrating on the killing of large fauna, such as mammoth and now-extinct forms of bison. The Paleo Indian Period is divided into the Clovis (11,500-11,000 B.P.), the Folsom (11,000-10,200 B.P.), and the Plano (10,200-7500 B.P.) Traditions. Although both Clovis and Folsom Traditions are identified by distinctive fluted points, the processes of transition between the two are unclear, and Frison (1978) has proposed a transitional Goshen Complex. The Plano Tradition is characterized by a proliferation of point types, which may reflect increased territoriality and technological specialization as greater resource stability preempted the need for long-distance interaction networks (Hayden 1982:119).

The presence of humans in southern Colorado and surrounding areas during the Paleo Indian Period is recorded primarily by surface finds (there are two Folsom finds on the Chaquagua Plateau [Campbell 1976], for example). However, this area is close to the Folsom type-site, located just southeast of Raton, New Mexico. The bison kill-site of Olsen-Chubbuck (Wheat 1972) is also relatively close, and it is likely that more Paleo Indian sites

will be found in the future. Within 200 miles of Fort Carson are the well-known Paleo Indian sites of Cattleguard, Lindenmeier, and Jurgens.

Archaic Period The Archaic Period begins about 7500 B.P. in southern Colorado and, as a whole, sites attributed to the Archaic Period are well represented. It is characterized by a shift to a wide subsistence spectrum of hunting and gathering, an increase in the use of groundstone tools used in plant preparation, and, at the end of the period at least, greater sedentism, which perhaps is a precursor to a dependence on cultivated plants.

Early Archaic Period (7500-5000 B.P.) sites are rare in southern Colorado (Eighmy 1984:68). Indeed it is possible that during this period, which coincides with the Altithermal warming episode, the Plains were abandoned or minimally occupied by humans (Reeves 1973; Benedict and Olson 1978; Buchner 1979). The Middle Archaic Period (5000-3000 B.P.) is well represented by both radiocarbon and typologically dated components in southern Colorado (Eighmy 1984). Point types seem to bear a resemblance to Southern Plains and Southwest types (including the Pecos Culture). During this period, stone circles (tipi rings) first appear, along with an increase in the size and complexity of communal bison-hunting techniques (Forbis 1978; Reeves 1978). Archeological evidence for the Late Archaic Period (3000-1800 B.P.) in southern Colorado is provided by a series of sites—including stratified rock shelters—such as Carrizo, McEndree Ranch, Medina, Recon John (which is located on the FCMR and described in more detail below), and Trinchera. The last site provided not only stratigraphic sequences, but also organic material and bones that indicate an emphasis on small-game hunting (Wood-Simpson 1976:177). Archaic sites in southern Colorado are sufficiently numerous to allow for the reconstruction of settlement systems: for example, Alexander et al.'s (1982) study of the archeology of the FCMR, Lutz and Hunt's (1979) of the Purgatoire and Apishapa highlands, and Eddy's et al.'s (1982, 1984) of the John Martin Reservoir.

Ceramic Period The Ceramic Period, according to Eighmy (1984), is not fully *formative*, because it is still based primarily on hunting and gathering, and it lacks established village life. Eighmy divides the Ceramic Period into Early and Middle subperiods. Gunnerson (1987:97) and Zier et al. (1987:2-13) have added a Late subperiod, which corresponds to Eighmy's Protohistoric Period. The major technological innovations of the Ceramic Period are, of course, ceramics (albeit in small numbers), the bow and arrow, stone architecture; and the appearance, in small quantities, of cultivated plants, in particular maize.

The Early Ceramic Period dates between A.D. 200-1000 and it corresponds to what has been termed the Plains Woodland Tradition (cf. Eighmy 1984). We prefer the former designation in view of the rather oxymoronic nature of the latter term. Cultures of this period appear to represent an indigenous outgrowth from Archaic systems. After about A.D. 450, there appear to be differences between sites found along the Arkansas and Platte River systems, respectively. Sites along the Arkansas River system are assigned to the Graneros

Focus (Withers 1954), which is characterized by cord-marked pottery, corner-notched projectile points that are later replaced by side-notched forms, and slab-constructed circular dwellings. The Parker Focus, which might be merely a geographical variant of the Graneros Focus (Butler 1986:213) - or vice-versa - is heaviest in the Denver Basin and South Platte River Valley region, and may extend to the San Luis Valley. According to Baugh (1994:269), the most recent - Early Ceramic - component at the Recon John shelter, located on the FCMR, may represent the most southerly and westerly extension of the traditional Plains Woodland Complex as exemplified by the Valley and Keith Foci of the Central Plains.

The Middle Ceramic Period (A.D. 1000-1500) of eastern Colorado contains variants of the Plains Village Tradition, such as the Upper Republican Complex, the Upper Purgatoire Complex, the Apishapa Phase, and the Upper Canark Variant. The Upper Republican Complex (A.D. 1000-1450) is characterized as a sedentary culture based on hunting, gathering, and horticulture (Gunnerson 1987:68-71). It is located primarily in southern Nebraska and northern Kansas. The complex is associated with the prehistoric Pawnee by Strong (1935). The Upper Purgatoire Complex (Dick 1963) is dated between approximately A.D. 1000-1225 (Cassells 1983:177; Wood and Bair 1980:15), and is divided into three phases: Initial Sopris, Early Sopris, and Late Sopris (Cassells 1983:177). Subsistence during this time was a mixture of foraging and farming, and its architectural and ceramic styles reflect both Plains and Southwestern influences. Indeed, it has recently been suggested that Sopris Phase sites represent an archeological frontier of the northern Southwest (Mitchell 1996). Alternatively, Turner (1980) has suggested that Sopris Phase populations may be Athabascan, based on a fairly high frequency (23%) of triple-rooted molars in a Sopris Phase skeletal assemblage from the Trinidad Lake area.

The Apishapa Phase was first recognized by Renaud (1931) and later defined by Withers (1954). It may have antecedents in the Graneros Focus (Baugh 1994:269). It is characterized by villages—of varying size—composed of upright slab-stone houses, often in defensible locations. The proximity of these sites to arable land (Campbell 1969:418-419) suggests some level of commitment to horticulture. Ireland (1968) proposed that at the Snake Blakeslee site (Gunnerson 1989) occupants subsisted primarily on corn and bison. Campbell (1969), based on supposed similarities between Apishapa sites and contemporary materials in the Texas and Oklahoma Panhandles, placed the phase into the Panhandle Aspect. Lintz (1978, 1984, 1986) in a reworking of this material, proposed the Upper Canark Variant (A.D. 1200-1500), which contains the Apishapa Phase and the Antelope Creek Phase of northeastern New Mexico and the Texas and Oklahoma Panhandles. Baugh (1994:282) has further added to the Upper Canark Variant the Zimms Complex of western Oklahoma and the eastern Texas Panhandle, and the Burial City Complex of the northeastern part of the Texas Panhandle.

The Late Ceramic or Protohistoric Period (A.D. 1500-1800) is characterized by many ethonographically recognized tribes who were either hunters and gatherers, or part-time horticulturalists. Aboriginal inhabitants during this period had access to European goods, but

were not in regular face-to-face contact with Europeans. A major Colorado Plains group was the Athabascans (specifically the Apache), who migrated south as part of the large Athabascan movement that began in Alaska sometime in the first millennium (Duke and Wilson 1994; Vickers 1994). They grew corn, beans, and squash, hunted extensively, and traded with Puebloan groups in northern New Mexico. These groups are represented archeologically by the Dismal River Aspect (A.D. 1675-1725), which is found throughout large portions of the western plains including eastern Colorado (Gunnerson 1987:102-107).

Archeological evidence suggests that the Apache entered southern Colorado sometime after A.D. 1300 (Campbell 1969:496). Excavations at a series of stone-circle sites associated with the Eastern Apache, located on the Carrizo Ranches on the Chaquaqua Plateau, were radiocarbon dated to the 14th century (Kingsbury and Gabel 1983). These sites also contained Pueblo IV pottery indicative of interaction with groups to the south. Other tribes of note during this period were the Comanche and the Arapaho and Cheyenne. A more detailed review of the ethnohistoric evidence is found in the succeeding section on Fort Carson ethnohistory.

Front Range Prehistory

The Front Range, as a unit of study, consists of that portion of the eastern flanks of the Rocky Mountains from southern Alberta in Canada to southern Colorado. Although the eastern slopes of the Rockies provide a dramatic and abrupt boundary to the western plains, in many areas, most notably Wyoming and, to a lesser extent, Montana, the mountain wall is broken by large basins that serve as western extensions of the plains grasslands. Indeed, Chomko (1991), in referring to Wyoming, has shown how that state's prehistory has been confused by mistakes over what constitutes *plains*, and by extension, therefore, the application a priori of Plains cultural taxonomies to the state's archeology.

Archeological investigations of the Rocky Mountains are recent, beginning in earnest only in the 1970s with the advent of federal conservation laws in both the United States (Matlock and Duke 1992:176) and Canada (Ronaghan 1986:passim). Prior to this period, anthropologists, beginning with Alfred Kroeber (1939), believed that the mountains were uninhabitable before acquisition of the horse. Archeologists, turned away by limited access to high mountain areas (Cassells 1992:12-13), were not inclined to test Kroeber's proposition.

Despite the massive increase in the data base as a result of government-mandated investigations, much of the archeological record of the Front Range is still "spotty", as a result not only of the nature of the archeological record itself (cf. Weimer 1995:96), but also of the rather "shot-gun" approach to investigations. Long-term research projects—such as Benedict's (1992; Benedict and Olson 1978) in the Indian Peaks Wilderness Area of Rocky Mountain National Park—appear as exceptions to the rule. Thus, long-term archeological investigations at locations such as FCMR are important for their contribution to our archeological knowledge not only of the immediate area but also of the Front Range in

general. Despite the different goals of the various individual research and management problems that have been conducted or are in progress along the Front Range, and despite the different backgrounds of the investigators involved in them, it is possible to isolate a number of issues that seem consistently to be addressed.

The first issue concerns the nature of the archeological record itself. This record is a product of essentially nomadic inhabitants existing in environments not conducive to good archeological preservation (Benedict 1992:1; Weimer 1995:96). Consequently, archeological interpretation has tended of necessity to oversimplify complex patterns of human behavior. It can be said that mountain archeology, as with most hunting-and-gathering situations, can define only *average* behavior patterns, "that is, how groups in general solved certain problems over long time periods" (Driver 1978:125). All archeologists working on the Front Range are hampered by an inadequate temporal resolution for their sites, which causes great variation between *precise* and *archeological* contemporaneity, to use Higgs and Jarman's (1975:5) nomenclature. This irresolution, caused by the nature of the archeological record, is at the root of all the other issues discussed below.

The second issue concerns the degree to which the culture chronologies of the Front Range and mountains can be based on those of the adjacent areas, especially the Plains (cf. Black 1991). This ambivalence has led to the application of oxymorons, such as foothills-adapted, Plains Woodland cultures (recognized as such by Black [1994]) in the Hogbacks west of Denver). More insidiously, the importation of external systematics has hampered a fuller understanding of the actual cultural dynamics of the area. Recognizing heterogeneity in the archeological record might help in constructing local chronologies, but is of less value in the reconstruction of actual prehistoric *behavior*. For instance, witness the relatively small differences in assemblages between the Hogback, Graneros, and Parker Phases (Cassells 1983:170). Our inability to correlate artifactual heterogeneity with actual behavioral patterns, whether they are at the level of seasonal facies of a single economy or at the level of distinct ethnic groupings, will continue to confound the creation of more sophisticated and realistic prehistoric behavioral models.

The third issue, obviously related to the first two, concerns the specific ways in which the Front Range and Rocky Mountains were exploited prehistorically. The first strategy implicates these two areas as marginal, exploited by prehistoric peoples whose primary territories lay either on the Plains, on the Great Basin, or in the Southwest. As noted earlier, ethnographers like Kroeber were disposed to this strategy.

The second strategy sees these areas simply as part of a total seasonal round that encompassed other adjacent areas. Examples of this strategy have been proposed by Bender and Wright (1988), Quigg (1974), Duke (1978), and Benedict (1992). Benedict (1992:11-14) has proposed two different systems for the Colorado Rockies, specifically in the central and northern parts of the state. The first, *up-down system*, is best represented by sites of the Early Archaic Mount Albion Complex. In this system, nomadic hunters and gathers moved

between the foothills and higher-altitude areas in an essentially east-west line. Benedict (1992:12) sees this strategy as particularly attractive to inhabitants newly forced from their traditional homelands on the Plains by Altithermal droughts. However, there is no reason this system could not have been practiced by longer-established residents, and at other time periods, too. The second, *rotary system*, is characterized by a circular annual round that encompassed not only the Front Range, but also North Park and Middle Park, making an annual round of up to 400 km. It is best represented by sites of the Late Prehistoric Hogback Phase. It is difficult to determine if these systems were practiced simultaneously by different groups.

The third strategy sees the Front Range and mountains as supporting year-round nomadic populations. This strategy has been proposed most forcefully by Brian Reeves in Southern Canada (1978, 1981) who has gone so far to say that at least in certain time periods, the Front Range was a separate cultural area, supporting year-round residents who considered themselves ethnically separate from resident groups both to the east and west. Frison et al. (1986:360) have similarly argued that the "mountains-foothills cultural groups were separate and practiced subsistence strategies different from those used by the classic Plains bison hunters of the same time period."

The third strategy is also represented by Black's (1991) Mountain Tradition. This tradition existed from about 9500 B.P. to at least 4500 B.P., with a continuation in certain areas until 700 B.P. when it was replaced by assemblages assignable to the prehistoric Numic (Ute and Eastern Shoshone). Spatially, the Mountain Tradition is found in upland areas as far north as southern Montana and as far south as northern New Mexico. It is defined by at least six characteristics:

- 1) settlement systems emphasizing upland environments on a year-round basis;
- 2) frequent use of a split cobble core reduction strategy and derivative split cobble tools, particularly in late Paleo-Indian and Early Archaic contexts;
- 3) presence of microtools (not microblades), especially after 6000 B.P.;
- 4) divergent styles of projectile points with general similarities to Great Basin types;
- 5) habitations and shorter-term dwelling structures in upland settings; and
- 6) distinctive rock-art with general similarities to Great Basin styles.

Black (1991:4)

Included in this tradition are the following complexes: Rio Grande, Uncompahgre, Rocker, Mount Albion, Magic Mountain, and Apex. Important sites along the Front Range, such as LoDaiska, Wilbur Thomas, and Willowbrook, probably served as winter residential bases, as did sites along the foothills west of the Continental Divide, such as Deluge Shelter, Sisyphus Shelter, Taylor, and Moore (Black 1991:13). Proposing this tradition argues for a year-round exploitation of the mountains by nomadic to semi-sedentary groups, for a long-term continuity in patterns of exploitation, and for an archeological identity for the mountains

that is distinct from adjacent lowland areas, beginning as early as the late Paleo Indian period (Black 1991:1).

It is doubtful whether the *present* archeological record (anywhere along the Front Range) allows us to adequately test such hypothetical strategies. Nevertheless, merely their reasonableness as *hypotheses* throws into doubt any complacency archeologists might have about the hopes of soon achieving any degree of understanding of prehistoric exploitation patterns in the area (Duke 1978).

Fort Carson Prehistory

Generally, sites become more common at Fort Carson as they get more recent, reflecting not only increased human populations, but more likely the better preservation potential of more recent archeological resources (Zier et al. 1987:2-44). The numerous surveys conducted on the reservation in the last ten years suggest that the majority of datable prehistoric components fall between approximately 1500 B.C. and A.D. 1500, while most datable historic structures date to the last few decades of the 19th century and the first half of the twentieth (e.g., Van Ness et al. 1990; Jepson et al. 1992).

Prior to the Fort Lewis (1996) inventory, there was only one piece of evidence on the FCMR that belongs to the Paleo Indian Period, an isolated projectile point dated to approximately 8000 B.P. (Zier et al. 1987).

Although definite Archaic sites are rare on the reservation, most flaked-lithic sites are undated, and so many of these could be Archaic in age. An important multi-component site on the reservation is the Recon John shelter (Zier and Kalasz 1991). This rockshelter contained three radiocarbon-dated components: Middle Archaic (4400-3700 B.P.), Late Archaic (2000-1800 B.P.), and Early Ceramic (1800-1000 B.P.). Evidence for a hunting-and-gathering economy, with some degree of maize horticulture, was recovered from this site.

Early Ceramic Period sites are common at Fort Carson (Zier et al. 1987:2-9), although Zier cautions that some of these may be misidentified Middle Ceramic sites, because both periods have cord-marked pottery. There are many Middle Ceramic sites in the reservation, especially in its southern part. Apishapa Phase lifeways have been elucidated through long-term investigations at the Avery Ranch site, the most recent of which were conducted by Centennial Archaeology in 1985 and 1986 (Zier et al. 1988, 1990). The Avery Ranch site, a multi-functional camp occupied in a single episode during the fall, dates to the thirteenth century. Zier identified four major activity areas, three of which contained architectural remains. Large quantities of butchered bison bone and charred seeds, especially *Chenopodium* (goosefoot), indicate a hunting-and-gathering economy, although a small amount of maize was also recovered. In general, Apishapa lifeways seem to have been organized around the efficient gathering and storing of wild plants, the hunting of deer,

antelope and some bison, and the farming— albeit limited—of at least five different varieties of maize (Baugh 1994:278).

Additionally, in keeping with the generally processual nature of archeological research conducted during the 1970s and 1980s, the Fort Carson prehistoric data base has been subjected to a variety of settlement modeling (Zier et al. 1987:2-45-51). Zier et al. (1987:2-47-51) reject inductive-based models in favor of deductively generated predictive models that allow for a better control of sample universes. Despite the persuasiveness with which Zier makes his case, inductive models at least avoid the problem of a priori assuming which environmental variables were important in the selection of specific site locations (cf. Butzer 1982; Weimer 1995).

Predictive models for the Turkey Creek, Booth Mountain, and Red Creek areas were generated by Zier et al. (1987:2-86). Booth Mountain provided the most surprising results in terms of the frequency and distribution of archeological sites in an area assumed to be too rugged to have supported a large prehistoric population. It was determined that the highest site probability lay on the southern and western slopes of the mountain, with sites located along the drainages that flow into Booth Gulch rather than into Turkey Creek. It is possible that the very inaccessibility of Booth Mountain made it an attractive habitation. Very few sites were found on the east half of the mountain except for the rock art that is pervasive in Turkey Creek Canyon.

The subsistence and settlement model for Fort Carson, and on which the predictive modeling is based, supposes that during the prehistoric period the Fort Carson area was part of a human migratory pattern that ranged from the high mountains to the open plains. A variety of animals and plants, of which piñon nuts are considered of fundamental importance were used (Zier et al. 1987:2-59). In keeping with studies elsewhere (e.g. Quigg 1974; Duke 1978) Zier et al. (1987:2-52) have proposed that large, winter base camps were established in the more sheltered foothills, along the Arkansas River and its permanent tributaries. Smaller camps, established in the spring and used throughout the rest of the year, were located along different routes radiating from the winter base camps, in response to the seasonal availability of particular resources. In this regard, it is important to acknowledge that such annual subsistence rounds may have been far-ranging. Rockafellow's (1881) history of Fremont County, for instance, described historic Utes as summering in the higher elevations of the Rockies before coming down to winter base camps in the Arkansas River Valley, near Cañon City. Thus, prehistoric sites found in the Monarch Pass area (Hutchinson 1990) may have relevance to explicating subsistence patterns in the Fort Carson area, especially given that the Arkansas River Valley was the primary communication corridor to the Monarch Pass area during the historic period.

Fort Carson Ethnohistory and History

From the initial period of European contact, which began in the middle of the 16th century, Plains Indians underwent profound cultural, social, and economic changes, descriptions of which need not be replicated here. Initial contact was at first indirect, in the form of long-distance trade (beaver and muskrat pelts in exchange for numerous European goods), but this was replaced by face-to-face contact and exchange. Beaver trapping (and later bison-hide tanning) brought the Plains into the world economic system (cf. Lewis [1942] for an early surgical analysis of the economic and social effects of this on Northern Plains groups, particularly the Blackfoot). Acquisition of the horse and gun helped individual Indian groups to resist European expansion, but often this was done by taking over the territories of Indian groups who were not so well equipped. The horse also caused major economic and social changes to Indian tribes, and these are well documented by Roe (1955). In general, the period of European contact, then, can be seen as one in which Native Americans were forced to become much more mobile and to cope as best they could with the European economic nexus into which they had been so unwillingly drawn.

It is difficult to determine precisely which Indian tribes used the Fort Carson area because of its location at two major physiological zones (Plains and Mountains) in three culture areas (Plains, Mountains, and Southwest), and its proximity to important passes and trails used by many different groups. However, based on general knowledge of the ethnohistoric period in southern Colorado, and also specific references to places like Manitou Springs, some degree of confidence can be placed in stating that the area was utilized by at least four tribes: the Apache; Comanche; Arapaho; and Ute (Zier et al. 1987:2-166-171).

Southern Plains tribes first contacted Spanish groups beginning in 1541, when Coronado led an expedition across parts of New Mexico and Kansas (Hammond and Rey 1940). Coronado's description of the groups he met provides a good description of peoples who were still essentially "prehistoric." Coronado encountered two groups called "Querechos" and "Teyas", although there is dispute as to whether both were Apache, or Apache and Caddoan groups respectively (cf. Weber 1990:XVIII-5-6). During the 16th century, more Spanish expeditions were sent throughout what was to become northern New Mexico and adjacent regions to extend Spanish sovereignty and to convert the Indians to Christianity. Of particular interest is the 1593 expedition of Francisco de Bonilla and Antonio de Humana. Although their exact route is not clear, it is possible that they traveled through the Fort Carson area (Zier et al. 1987:2-94).

Beginning in the late 17th century, the Apache, mounted and heavily armed, became a dominant force on the Southern Plains, raiding for both horses and slaves that were then traded to the Spanish (Weber 1990:XVII-7). Despite the unstable relations between Apache and Pueblo groups it was, nevertheless, the former to whom the latter fled after a series of revolts (the biggest revolt started in 1680 and lasted for 12 years).

In the early part of the 17th century, the Taos and Jemez Pueblos revolted against Spanish rule, and established a new settlement called El Cartelejo in western Kansas, which was under the control of the Apaches. It is unclear whether El Cartelejo was a specific pueblo or a region, however (cf. Forbes 1960; Schroeder 1974). By the 1660s the Spanish had moved the fleeing Puebloans back to their original settlements (Forbes 1960:137-139), although the area continued to act as a refugium for Puebloan and Apache groups trying to escape Spanish domination. Throughout the 18th century, the Apaches lost both power and territory as the Comanche expanded, as eastern groups like the Kansa, Oto, Iowa, Ponca, and Omaha moved west, and as the area became a geopolitical arena contested by both France and Spain (Schlesier 1972).

The Comanche, together with the Ute, began to move into southern Colorado and adjacent Kansas at the beginning of the 18th century (Weber 1990:XVII-13). Notwithstanding their defeat by de Anza in 1779 near modern-day Pueblo (Athearn 1985:18), the Comanche continued to expand their hegemony throughout the southern Colorado plains and areas to the south and east during the 18th century. The Utes raided with the Comanche until the middle of the 18th century, when the Comanche turned on them. The Utes were originally mountain dwellers who made incursions into the Plains through many mountain passes (Hyde 1976:54-57; papers in Nickens 1988).

Ulibarri, who in 1706 brought back dissident Pueblo Indians from refuges across the Arkansas River, reported that the Utes and Comanches were raiding the Apache between present-day Pueblo and Trinidad, although they had not yet succeeded in driving them out completely (Hyde 1976:64). A later Spanish expedition in 1719 led by Governor Valverde found Apache still occupying southeastern Colorado (Schroeder 1974). Valverde's professed objective was to prevent Ute and Comanche raids on the Apache, although the leisurely nature of the expedition suggests that he had no urgency in accomplishing this (Hyde 1976:67-70). At least a secondary objective of the expedition was to show the Spanish flag in response to increasing French incursions into Spanish territory (Athearn 1985:14-16). These Spanish incursions increased until the outbreak of the French Indian War of 1754 (Athearn 1985:17). During the latter part of the 18th century, increasing Arapaho and Cheyenne incursions into the western Plains began to shunt the Comanche southward (Hyde 1976), and in 1786, the Spanish made a peace treaty with both the Comanche and the Ute (Athearn 1985:18).

During the 18th and early part of the 19th centuries, southern Colorado was infiltrated by *comancheros* and *ciboleros*, Hispanic and Pueblo Indian traders, and buffalo hunters (Weber 1990:XVII-15; Baugh 1994). The *comanchero* trade was based on well-established prehistoric trade patterns between Pueblo farmers and Plains bison hunters (cf. Spielmann 1991). Initially involving native corn and bison products, by the beginning of the 18th century the trade system incorporated Spanish goods, including horses and guns, as well as slaves. Trade fairs, such as the one at Taos, become an important component of the New

Mexico economy (Carrillo 1990:XVIII-8). This changed, however, under American rule, since the *comancheros* were now considered thieves and villains (Carrillo 1990:XVIII-9).

Cibolero hunting comprised huge bison-hunting expeditions from New Mexico into the adjacent plains to take back bison products to their home settlements. These expeditions climaxed in the early 19th century. Increasingly, Anglo traders were attracted to southern Colorado and northern New Mexico to trade with both Indians and Hispanic settlements (Weber 1990:XVII-18-19).

Up to 1821, the ethnohistoric period of southern Colorado, as for adjacent areas, was characterized by processes that led both to the demise of aboriginal groups as independent entities and to increasing control over these areas by Spanish residents in areas to the south. However, southern Colorado was never successfully colonized by the Spanish (Carrillo 1990:XVIII-7), and the area was important to the Spanish primarily for the resources that it offered. After 1821, what Carrillo (1990:XVIII-1) calls the second period of historical culture change in the area was initiated. Mexican independence intensified trading opportunities between southern Colorado and Hispanic settlements to the south. This second period lasted until the Mexican War of 1846-48, which effectively ended Mexican domination of the area.

The earliest American interest in the Fort Carson area resulted from attempts to explore beyond their recognized territorial boundaries because of the Louisiana Purchase of 1803, which put newly-acquired American territory immediately adjacent to long-held Spanish lands (Athearn 1985:25). In 1806, Zebulon Pike led an official U.S. expedition up the Arkansas River into what would become Colorado. Pike traveled up the Arkansas as far as South Park and then returned to journey to Santa Fe as a "prisoner" of Spanish troops. Pike's foray was followed by a wave of fur trappers and then by more scientific and military expeditions (Zier et al. 1987:2-100), such as the Long (1820), Dodge (1835), and Fremont (1843-44) expeditions, all of which went through or very near to Fort Carson. The fur trade, in particular, which began with French traders about one hundred years earlier, was responsible for a system of trails linking the area to the Spanish settlements to the south. Most important, Bent's Fort was founded in 1829, at the mouth of either the Huerfano River or Fountain Creek (Zier et al. 1987:2-104). This fort dominated regional trading for the next twenty years. There was little that the waning Spanish power could do to oppose increasing American incursions into their lands (Athearn 1985:27). Finally, in 1822, the Republic of Mexico declared its independence from Spain, and the New Mexican governor, Facundo Melgares, immediately opened the province to traders of all nationalities (Athearn 1985:27).

The "American Period" officially began in 1848 with the annexation of Mexican lands by the U.S. under the terms of the Treaty of Guadalupe-Hidalgo (Athearn 1985:31; Carrillo 1990:XVIII-14). Manifest Destiny and the spirit of western entrepreneurship swept the study area. In 1851, the U.S. government decided to allocate specific tribal territories to the individual groups (Weber 1990:XVII-19-20), and in 1867 the government signed a

treaty with many southern Plains tribes. This led ultimately to the Reservation Period and the removal of tribes from their homelands. The Comanche, for example, were placed on a reservation in western Oklahoma (Wallace and Hoebel 1952). The land now identified as Fort Carson became part of the newly defined Territory of Colorado, enacted by Congress in 1861 (Athearn 1985:64).

Gold mining played an important role in the European development of the Fort Carson area, particularly after the 1848 finds in California, which encouraged miners to search in various places throughout Colorado. Both Canon City and Pueblo served as supply centers for miners prospecting the Leadville lodes, but after 1863, the gold deposits there began to play out, and the two towns lost much of their importance (Zier et al. 1987:2-111). A silver rush in 1878 in the Wet Mountain Valley just outside Canon City temporarily revived hopes of renewed mining wealth (Athearn 1985:120). A second gold strike in the Cripple Creek area in 1890 temporarily revitalized the industry, which led to renewed prospecting in the Fort Carson area, as well.

After the Civil War, population increased as the mining and agricultural potential of Colorado was realized, and as a result, various railroads were constructed throughout southern Colorado (Athearn 1985:89-110; Carrillo 1990:XVIII-21). Many local lines were built to transport coal mined from deposits east of Canon City, and the last 15 years of the nineteenth century saw Florence's brief rise as an oil-drilling center (Zier et al. 1987:2-113). During this same period local stone-quarrying and cement-manufacturing plants were built in the general area, which included plants at Booth Gulch. Quarrying for building stone and clay was conducted at Stone City in Booth Gulch over a ten-to-fifteen year period. Clay mining was a viable operation at Booth Gulch and proved to be more long-lived than the quarrying of stone (Zier et al. 1987:2-115).

Cattle ranches, associated with the Santa Fe Trail, had been established in the area by the 1860s. The first herds were all longhorns brought in from Texas (Zier et al. 1987:2-119-120), although sheep were for a while the most important livestock (Zier et al. 1987:2-127). Settlement in the immediate Fort Carson area took the form of isolated ranches, with most of the area being used as open range (Zier et al. 1987:2-125). A list of the late 19th century ranches in the Fort Carson area is provided in Zier et al. (1987:2-128-133). Colorado Springs was established in 1871, and in that same decade freight and passenger services were established between Colorado Springs, Canon City, and South Park (Athearn 1985:99).

The Fort Carson Military Reservation was established during the Second World War. Camp Carson was established in 1941, and Ent (later Peterson) Air Force Base was built a year later. Camp Carson was renamed Fort Carson in 1954, and in that same year both the United States Air Force Academy (USAF) and what would become NORAD were established (Zier et al. 1987:2-137-141).

Research themes established by Zier et al. (1987) for the Historic Period of Fort Carson include the following: (1) open range ranching; (2) homestead settlement patterns; (3) mining; and (4) military occupation and training (Zier et al. 1987:2-142-149). Historic site types comprise: (1) settlement sites; (2) mines or quarries; (3) railroads; (4) townsites; (5) rock shelters/petroglyphs; (6) dams and ditches; (7) roads; and (8) isolated agricultural facilities (Zier et al. 1987:2-150).

Historic sites considered eligible for the National Register of Historic Places are: (1) sites associated with the fur trade, early exploration, and pre-1880 military activities; (2) open range ranching sites; (3) original homestead or ranching sites; (4) sites which contain unique or outstanding examples of architectural styles, periods, construction techniques, materials, or craftsmanship; (5) "homestead" settlement sites that are particularly representative of site classes; (6) sites which exhibit historically important engineering features or industrial processes (Zier et al. 1987:3-6-7).

CHAPTER 3

REVIEW OF PREVIOUS ARCHEOLOGICAL WORK IN THE FORT CARSON MILITARY RESERVATION

The Fort Carson Historic Preservation Plan (HPP), compiled and edited by Zier et al. (1987), contains a detailed discussion of archeological investigations on the reservation and in surrounding areas, and so the following is intended only as a brief synopsis, in order to place current work into perspective. The HPP is currently being updated. Archeological investigations at Fort Carson parallel the evolution of twentieth century American archeology in general, from ill-trained, albeit enthusiastic, amateurs to the theoretically and methodologically sophisticated projects of today's researchers, both private- and university-based. Most work has concentrated on the southern part of the military reservation.

The earliest known archeological work in the area of Fort Carson was conducted in the 1930s and 1940s by E.B. Renaud of the University of Denver; his work is reported in several individual publications (Zier et al. 1987). It was Renaud who named the *Turkey Canyon District* (Turkey Creek Rock Art District) and recognized its potential archeological importance. In this district, which is immediately east of Booth Mountain, Renaud identified several prehistoric campsites, some of them with structural remains, as well as some rock art and rockshelters, including the famous Avery Ranch site. Renaud excavated at least one rockshelter site, 5PE62, although it is unclear where the excavated materials were finally repositied (Zier et al. 1996:41).

During the 1950s, an amateur historian, C.W. Hurd (1960), incorrectly identified what he thought was Bent's first fort in the Arkansas River Valley. Later excavations and documentary research suggest that this site is later than Bent's stockade, and it is also in the wrong place (Zier et al. 1996:41).

The University of Denver returned to the reservation in the 1960s and inventoried archeological sites along Red Creek, Turkey Creek and Beaver Creek that were to be annexed by the U.S. Army (Withers 1964). A field crew from the university later excavated portions of the Avery Ranch site in 1965 and 1969 (Ireland 1968; Watts 1971, 1975). In that same decade Bass and Kutsche (1963) reported on an aboriginal burial found by amateurs adjacent to Turkey Creek.

More amateur work was conducted by members of the Colorado Archeological Society in the first part of the 1970s. Two rock art sites were recorded. One of these had originally been located by Renaud (Zier et al. 1996:42).

The appearance of the modern era of cultural resource management witnessed more intensive archeological investigations of the reservation. A 480-acre piece of land that straddled Renaud's original survey area (Nicholson 1975) was placed on the National Register in 1976, based on the significant rock-art sites, and other archeological sites, found within its boundaries. However, the district was not fully inventoried until 1988.

Grand River Consultants surveyed about one-third of the base between 1978 and 1982 and provided a comprehensive listing of all the different site types found in the reservation (Alexander et al. 1982; Hartley et al. 1983). A total of 38,291 acres was surveyed to produce a total of 98 prehistoric and 51 historic sites. Of these, 16 sites were then test excavated and 19 were shovel tested. Subsequently, 17 sites have been test excavated and 7 have been shovel tested by other researchers.

Other consultants who have contributed materially to the data base and knowledge of the reservation include Goodson and Associates (Burns and Killam 1983), Metcalf-Zier (Zier 1984), and Centennial Archaeology (e.g., Zier and Kalasz 1985; Schweigert 1987; Zier et al. 1987). Most of the work in the past ten years has been conducted by Centennial Archaeology. For example, this company conducted a cultural resource inventory of 1900 acres in the Multi-Purpose Range Complex (Zier and Kalasz 1985), 2595 acres in Turkey Canyon (Van Ness et al. 1990), and 8639 acres of high-priority areas in other parts of the military reservation (Jepson et al. 1992). In 1984 and 1985, portions of the Avery Ranch site were reexcavated by a field crew from Centennial Archaeology (Zier et al. 1988), and in 1986 the Recon John Rockshelter was excavated (Zier 1989). Details of both these sites can be found in chapter two of this report. In addition to inventory and excavations, Centennial Archaeology conducted test excavations at several sites, and these are reported in Kalasz et al. (1993) and Van Ness et al. (1990).

Archeologists from Centennial Archaeology were contracted to prepare a comprehensive *Historic Preservation Plan* for the future management of cultural resources on the reservation (Zier et al. 1987). Preliminary site-location models, generated as part of the preservation plan, were subsequently tested in the field by Grant and Zier (1987). Since the preparation and implementation of this plan, further work has been conducted under its rubric. Centennial Archaeology was also responsible for producing the Fort Carson Database system to simplify access for managers and researchers to archeological data on the reservation (Mueller 1995).

Besides these large-scale surveys and excavations, smaller surveys have also been conducted: for example, those related to the construction soil conservation structures, a fiber-optic line, and other small projects (Butler 1990, 1991, 1992). In 1993, Metcalf

Archaeological Consultants surveyed a small portion of land in the southeastern part of the reservation for the City of Colorado Springs. No cultural resources were located (Spath 1993).

The recent work in the FCMR has produced at least two important reports published in refereed journals. In 1991, Zier and Kalasz published a synthetic site report of their excavations of the Recon John Rockshelter in *Plains Anthropologist*. A full report of their work is found in Zier (1989). This site is significant for the light it sheds on the transition between the Archaic and Woodland periods in this part of Colorado. Zier, with a team of colleagues, has also published in the same journal the results of his testing at the Avery Ranch site, important for its information on subsistence and settlement patterns during the Apishapa Phase (Zier et al. 1990). Watts (1971) had earlier produced a master's thesis (University of Denver) on this site. In 1985, a human burial was discovered in the southwest portion of the FCMS. This burial, which dates after 1000 B.P., was found by army personnel during training exercises. The results of excavation of the burial are reported in *Southwestern Lore* (Butler et al. 1986).

In conclusion, up to and including 1993, various investigations, conducted for different purposes and by different institutions, have resulted in a total of 60,116 acres of the reservation being inventoried (Zier et al. 1996) for a total of 495 archeological sites and 670 isolated finds. Most recently, Fort Lewis College conducted an inventory of 1460 acres on Booth Mountain during the summer of 1995 (Charles et al. 1997). The inventory area was considered by Zier et al. (1987) to have a high probability for the presence of archaeological, sites, historic and prehistoric. Site density was considered to be high with a total of 35 sites and 78 isolated finds. Moreover, a historic buildings inventory (Barnes 1991) has documented over 200 buildings of World War II vintage located close to or within the cantonment. Most recently, The Old Hospital Complex (5EP1778) at Fort Carson has been fully documented by the National Park Service (Connor and Schneck 1996). This semi-permanent complex was constructed during WWII and consists of 59 buildings that functioned as wards, clinics, mess halls, support services, administrative, recreation, and utility structures.

In September of 1996, limited test excavations were conducted near the Mountain Post Sports Complex, located on the FCMR (Korgel 1996). Results of the testing identified a large catacomb filled with rusted metal. The catacomb is believed to be part of a larger dump that once was associated with one of two historic ranch complexes. The report does not identify a specific time period for the artifacts, and the exact origin of the dump is inconclusive. No further work was recommended at this location. In that same month, test excavations were completed in the immediate area of Building 10010 of the proposed Turkey Creek National Register District. The purpose of the testing was to investigate the extent of impacts to any significant subsurface archeological deposits as a result of construction activities. Subsurface testing was conducted in September 1996, and a report of the results was submitted to the National Park Service (Korgel 1996).

CHAPTER 4

RESEARCH DESIGN AND OBJECTIVES

The federal legal criteria used in this evaluation are found in 36CFR60 and are as follows: the quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. that are associated with the lives of persons significant in our past; or
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. that have yielded or may be likely to yield information in prehistory or history.

Sites may have national, state, or local significance.

The *Colorado Plains Prehistoric Context* (Eighmy 1984: 48-49, 64-65, 77-78, 103, 142-143, 152-153) provides criteria for each of the major cultural periods represented on the Colorado Plains that further assist in the evaluation of a site's significance and potential eligibility nomination to the NRHP. Of lesser importance to the project area are the research problems identified for the mountains and foothills by the *Colorado Mountains Prehistoric Context* (Guthrie et al. 1984: passim) and the *Colorado Southern Frontier Historic Context* (Mehls and Carter 1984: passim).

This present work also conforms to the Historic Preservation Plan mandated for all Army installations (Department of Army 1984:2-1):

- 1) To integrate historic preservation requirements with the planning and conducting of military training, construction, other undertakings, and real property or land use decisions;
- 2) To set up a legally acceptable compliance procedure with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO);

- 3) To set priorities for field, analytical, and documentation projects that are designed to develop, evaluate, and manage the inventory of significant historic properties;
- 4) To establish a procedure for evaluating historic properties;
- 5) To provide guidelines for the protection or treatment of historic properties; and
- 6) To identify funding, staffing, and milestones.

The FCMR Historic Preservation Plan (HPP) was prepared in 1987 (Zier et al. 1987) by personnel from Centennial Archaeology (Fort Collins, CO), Cultural Research and Management (Bismark, ND), Statistical Research (Tucson, AZ), and by Kenneth Weber (Boulder, CO). This document provides a comprehensive synthesis of all cultural resources on the base, places these data into a regional context, and offers a detailed plan to ensure the army's compliance with its mandates regarding the correct treatment of cultural resources on army property. Specifically, the HPP "provides cultural resource managers with pertinent background about the prehistoric and historic resource base while outlining procedures for dealing with the resources so that the requirements of applicable historic preservation statutes are fully met" (Zier et al. 1987: 1-2).

To this end, Zier et al. (1987:2-19-35; 2-142-149), identified nine research themes that could be addressed by future archeological work on the base. The prehistoric research themes include the following: (1) chronology, (2) settlement patterns, (3) economics, (4) horticulture, (5) paleoclimates, (6) technology and material culture, (7) architecture, (8) rock art, (9) geomorphology (Zier et al. 1987:2-19-35). Research themes for the Historic Period were of a different nature, concentrating primarily on subperiods rather than specific topics *per se*: (1) open range ranching; (2) homestead settlement patterns, (3) mining, (4) military occupation and training (Zier et al. 1987:2-142-149).

Prehistoric sites considered eligible for nomination to the NRHP include: (1) pre-Paleo Indian and Paleo Indian sites, (2) Early Archaic sites, (3) sites with buried deposits, (4) stratified multi-component sites, (5) architectural Early and Middle Ceramic sites, (6) Late Ceramic structural sites, (7) communal kill sites, (8) intact rock art sites, (9) complex lithic material quarries, and (10) unique aboriginal sites (Zier et al. 1987: 3-3-5). Historic sites considered eligible for the National Register are: (1) sites associated with the fur trade, early exploration, and pre-1880 military activities, (2) open range ranching sites, (3) original homestead or ranching sites, (4) sites which contain unique or outstanding examples of architectural styles, periods, construction techniques, materials, or craftsmanship, (5) "homestead" settlement sites which are particularly representative of site classes, and (6) sites which exhibit historically important engineering features or industrial processes (Zier et al. 1987:3-6-7).

Test excavations at 5EP2524 were designed to determine the potential of the site to yield significant information and therefore its potential for nomination to the NRHP. Of particular concern was the need to differentiate between features that were the result of recent military activity (such as machine gun nests) and those constructed during the prehistoric period.

In order to evaluate the site's potential, the following procedures were followed:

- a) a complete ground surface survey and mapping,
- b) the creation of an informal typology of the depression feature based on the following criteria: 1) size and depth, 2) location on terrace (i.e. on edge or in interior, 3) presence or absence and frequency of modern (i.e. military) materials associated with each feature. While this project could not be completed on this one site, it is hoped that a refinement of any correlation between feature type and artifacts might allow prediction of cultural origin based on depression type alone,
- c) testing a sample of feature types to determine their age and cultural affiliation by means of test units both inside and adjacent to individual features, and
- d) shovel testing between features to determine the vertical and horizontal extent of any inter-feature components.

CHAPTER 5

FIELD AND LABORATORY METHODS

Introduction

The 1996 Fort Lewis College field season at Fort Carson was divided among inventory, evaluative testing, and site relocation and reevaluation. The original scope of work consisted of an inventory of selected portions of land surrounding a proposed gravel quarry near the Rod and Gun Club (Figure 1.2). A second objective was the recording and evaluative testing of an expansive prehistoric artifact scatter with many enigmatic circular-stone features. These stone features were identified as possible structures, perhaps associated with Early to Middle Ceramic Period occupation (Connor: personal communication). Although the site had not been formally recorded, the circular-stone features were viewed as unusual or unique, and, therefore, considered eligible for nomination to the NRHP under the rubric of the FCMR Historic Preservation Plan (Zier et al. 1987:3-4).

Immediately after fieldwork had commenced on the scheduled inventory and testing, the scope of work was amended by the Army to include the inventory of a proposed ground-assault range (Range 127) in the Timber Mountain, United States Geological Survey 7.5' quadrangle (Figure 1.2, Figure 1.3 and Figure 1.4). A small portion of the proposed assault range within the Turkey Creek drainage and on the unnamed mesa southeast of Turkey Creek had been previously inventoried (Alexander 1982), and six archeological sites were identified as eligible for nomination to the NRHP (Alexander 1982). At the request of DECAM personnel, Fort Lewis College relocated and reevaluated the six resources for NRHP recommendation. Fort Lewis College was also requested to complete the inventory of the proposed ground-assault range.

FIELD METHODS AND TECHNIQUES

INVENTORY

Field work followed the proposal (Duke 1996), the guidelines and definitions of the Fort Carson Historic Preservation Plan (Zier et al. 1987), and those of (Dean 1992). A record search was conducted by FLC at DECAM, Fort Carson, Colorado Springs, Colorado. This record search included consulting the United States Geological Survey 7.5' quadrangle maps housed at the facility and perusing reports from the cultural inventories conducted within the general survey areas. Also, a record search was conducted by the State of Colorado Historical Society for FLC.

The intensive pedestrian inventory of both project areas was accomplished with a single crew that varied between 4 and 8 persons. Spacing between crew members averaging 20 meters. Occasionally the transect width varied between 15 and 30 meters depending on terrain and vegetation. Spacing was narrowed between crew members in areas deemed most likely to contain cultural properties. Transect orientation followed a preestablished azimuth direction, usually with respect to the cardinal directions. The outer edges of each transect were flagged; on the return transect, the flagging tape was retrieved, and the flagged line defined the starting point for the next transect. Crew members on the end transects were responsible for maintaining the correct azimuth direction. Transects that followed the contours were used primarily in steep canyons where the crew were paced out along the slope at 20 meter intervals, and the contour elevation of each transect was maintained to the destination point.

Topographical features were used to break up the survey areas into manageable segments. Meadows, canyons, and drainages served as physical topographic delineations. United States Geological Survey 7.5' quadrangle maps were used exclusively in the field for orientation and for plotting archeological sites and isolated finds.

Ground visibility varied considerably among survey areas. An uncommonly wet spring in 1996 resulted in a thick grass cover along the terraces and alluvial plains. Additionally, thick vegetation along the watercourses impaired ground visibility considerably. The ridge tops and slopes, on the other hand, commanded excellent ground visibility.

When an artifact or feature was discovered, intensive reconnaissance was conducted in the immediate area to define the extent of the resource. If more than four artifacts or one tool and one artifact within a twenty meter area were discovered, the resource was defined as a site.

If the resource was identified as a site, the surrounding area was closely examined for artifacts and features, which were flagged. The extent of pin flags delineated the site boundaries. On sites with less than 50 artifacts, all artifacts were pin flagged and analyzed in the field. On sites with 50 or more artifacts, a nonrandom sample of the flaked-lithic artifacts was analyzed in a 1 m wide transect placed through the densest portion of the scatter. All artifacts within the 1 m wide transect were analyzed. Tools and artifact clusters were pin flagged, and each tool was analyzed.

Datum locations were recorded with a Trimble Global Positioning System (GPS). Site maps were created using azimuth readings taken with either a Brunton Compass or a Silva Ranger CL direct-read compass. Distances were measured with metric tapes. Field maps were drawn to scale on metric graph paper. Cultural features, artifact clusters, and prominent landforms were included on the site maps. If the resource was an isolated find, it was recorded on a State of Colorado Isolated Find Form.

Archeological Site

Site and isolated find definitions followed those of Dean (1992). Dean defines a *prehistoric archeological site* as a locus of five or more unmodified flakes or a single tool associated with one or more unmodified flakes distributed so that no artifact is more than 20 meters from the next nearest artifact. Any prehistoric feature or prehistoric rock art, whether or not it is associated with artifacts, or any prehistoric evidence occurring in the context that suggests high potential for buried cultural materials, is also defined as a site (Dean 1992:IV-12).

According to Dean (1992:IV-12), a *historic site* is any location that contains material evidence attributable to general Euro-American ideology and manufacture. These include isolated architectural features, historic features, or historic rock art. Implied in Dean, although never clearly stated, is the criterion that the site must be at least 50 years old to be considered a historic site. Therefore, any locality, feature, or artifact, where age determination is not immediately apparent, is recorded as a site. This must be done with a great deal of caution, especially within the military reservation where routine army ground maneuvers leave physical remains that resemble historic features, but where little debris remains to conclusively identify its cultural origin. Features or structures lacking visible artifacts that are presumed to be of prehistoric or historic (> 50 years old) origin are recorded as a site.

Isolated Find

A *prehistoric isolated find* is a location of four or fewer unmodified flakes or a single tool, each of which is separated from the nearest other item by no less than twenty meters (Dean 1992:IV-11). *Historic isolated finds* consist of any locality exhibiting four or fewer artifacts (Dean 1992:IV-12). An exception to this definition includes single artifacts broken into multiple pieces, such as a historic bottle. This exception is consistent with those of similar projects from the military reservation (e.g. Zier et al. 1996; Van Ness 1990; Jepson et al. 1992).

Safety

The survey area is located on the FCMR where training activities can take place daily. These activities include "live fire"; therefore, safety regulations for the base were rigorously followed. The crew was briefed on these safety regulations by the Project Director and Assistant Director, which included an awareness of military activities and of natural dangers such as rattlesnakes. Each morning a telephone call was placed to Range Control who instructed us in the proposed daily activities scheduled in our survey area. When any Area was active, survey activities were confined to the Areas that were inactive and safe. In the proposed ground-assault range (Range 127) this problem was exacerbated, because Range 127 was active during most of our field season.

Beyond the routine maneuvers that occur on the base, a unique problem arose with the inventory in the buffer zone for the proposed ground-assault range. Certain portions of the inventory fell within the buffer zone coterminous to the impact area. Military signs identified the impact area as highly dangerous and off-limits to civilians and unauthorized army personnel. The safety of the crew was discussed between Chuck Markel, Chief of Range Control, and Mark Lynott, Center Manager for MWAC. This discussion resulted in releasing FLC of the responsibility of the archeological inventory within the buffer zone directly next to the impact area. (Lynott 1996). We were, however, requested to continue survey west of the buffer zone on the basis that any ordinances in this area are exploded and harmless. The only person from the survey crew who had been briefed in the recognition of military ordinances was the Project Director. This briefing was conducted by the Explosive Ordinance Disposal Crew (EOD) on another military installation several years ago. Over the course of the inventory, crew members, including the Project Director, noted several ordinances exposed on the surface, which appeared unexploded and therefore potentially dangerous. Most often the ordinances were found near the boundary of the buffer zone. The Project Director discussed her concern over these potentially dangerous ordinances with personnel at DECAM, Range Control, and MWAC. The inventory continued in this area until June 9, when the Project Director halted the survey because four potentially unexploded ordinances were observed in a single transect sweep. This information was relayed to the Army and to MWAC, and on June 11, official notice was received to halt the survey in the area west of the buffer zone (Warren 1996).

Communication between field crews was important. Each crew carried a Benedix two-way radio provided by Fort Carson. Radio communication between crews greatly improved survey logistics. The radios also provided a way to contact base personnel if needed. A cellular phone, property of the Midwest Archeological Center, was carried in case of emergency.

Collections

Under the proposal for field work submitted to MWAC by Fort Lewis College (Duke 1996), artifact collection included diagnostic artifacts or unusual items that needed more thorough examination in the laboratory.

Recording

One Trimble Pathfinder Global Positioning System (GPS) was employed during the survey. Instruction on the use and care of the GPS unit was provided by Anne Vawser of the Midwest Archeological Center. Readings obtained in the field were used to plot cultural resources on the field maps and to establish base reference points for survey. To a lesser extent the unit was used for navigation.

For accurate coordinate readings, the GPS units needed to receive signals from a minimum of five satellites. One hundred data points were recorded at the datum of each new site, and fifty points were recorded on isolated finds with a single reading recorded every five seconds. At the end of each day, the data were downloaded from the GPS unit into the Gateway Notebook computer supplied by Fort Lewis College.

The coordinate readings from the GPS are issued as Universal Transverse Mercator (UTM) readings in meters. The UTM readings obtained from the GPS units are a priori scrambled, but were corrected during post-processing by personnel from MWAC. The isolated finds and sites were plotted on United States Geological Survey 7.5' quadrangle maps, and their locations were checked against the GPS readings. Good orienting skills and attention to topographic details were relied upon most heavily throughout the survey, with the GPS system serving as an additional tool in the accomplishment of the survey.

All sites were recorded on the appropriate Colorado Cultural Resource Survey forms. These included a Management Data Form, a Prehistoric Component Form, a Historic Component Form, and a Historic Architecture Form. Colorado State Reevaluation Forms were completed for sites revisited during our inventory. Besides the State of Colorado forms, Fort Carson/Pinon Canyon forms were completed when appropriate.

Flaked-lithic artifacts were classified in the field using the method defined by Sullivan and Rozen (1985). This analysis is consistent with most of Centennial Archaeology's work on the FCMR, which includes most of the work conducted on the FCMR over the last ten years. This method is described in greater detail under the Laboratory Methods section of this chapter.

A datum location was established usually near the middle of the site. A piece of $\frac{3}{4}$ in. rebar 18in. long driven into the ground marked the datum location. The state site number was etched into a metal site tag and attached to the datum. A GPS coordinate reading of fifty GPS points was taken at each datum location. Linear sites, such as roads and fencelines, were mapped with the GPS. GPS points were taken along the route of linear features with attention to turns or bends. Maps of these sites were generated by plotting the GPS points and connecting points on the United States Geological Survey 7.5' quadrangle map.

Two black-and-white photographs were taken of each site. One was taken from the datum, and the other was an overview from the site. Whenever possible, one photograph was taken of topographic features that would help in relocating the site. The black-and-white film was processed, and contact sheets were made of the negatives. The catalog number assigned to a roll of film was also applied to the contact sheet, negatives, and field photo log.

Over the course of the winter, we realized a few of the isolated finds should have been recorded as sites under the strictest adherence to the definitions of Dean (1992). A crew returned to Fort Carson in April, 1996 and recorded these isolated finds as archeological

sites. They used the same field methods previously described, and they were able to record their locations with a Trimble Unit provided to them by DECAM.

EVALUATIVE TESTING

Field methods for testing rigorously followed those prescribed in the *Guidelines to Required Procedures for Archeological Field and Laboratory Work at Piñon Canyon Maneuver Site, Las Animas County, Colorado* (Dean 1992), and the reader is referred to this document for procedural detail. In a few instances minor changes to the field methods were implemented due to the particular circumstances of the archeological sites. These changes are discussed in Chapter 7 on testing results.

Surface Reconnaissance

Site evaluation of 5EP2524 began with a reconnaissance of the surface. The site proved to be very large and included 21 stone features within a light flaked-lithic artifact and historic glass scatter. A main site datum was established on a high point and in the open with good visibility. Five subdatums were necessary to accurately map the site. The mapping team consisted of the surveyor running the machine, a rod person, and a recorder for mapping artifacts. Artifacts that were not collected in the field were analyzed at the time of field mapping.

Surface Artifact Analysis and Collection

Surface artifacts and features were pin flagged. Features were numbered and either mapped or photographed. Each feature was recorded on a PCMS/Fort Carson feature form and is described in detail in Chapter 7. Flaked-lithic debitage was field analyzed using a method described by Sullivan and Rozen (1985), which is discussed in length in the section describing laboratory methods. Collected surface artifacts were limited to datable historic items and flaked-lithic tools.

Subsurface Testing

Shovel Tests

Shovel tests were executed according to the guidelines in the field and laboratory manual (Dean 1992). They were placed along azimuth lines and spaced every 4 meters apart. The average diameter of a shovel test was 35 cm. Each shovel test was excavated to bedrock, sterile substratum, or until the hole could no longer be dug without expanding the diameter (usually around 75 cm). The sediments were screened through ¼" mesh. Shovel test data are recorded on auger/shovel test forms. Recorded information consisted of the diameter, depth, materials recovered, and a brief stratigraphic description. The shovel test locations were mapped with the theodolite.

Test Unit Excavation

Test unit excavations followed the guidelines set forth in the field and laboratory manual for testing and excavations (Dean 1992). Excavation units were placed nonrandomly across the sites. In cases of visible surface features, a test unit was often placed within or next to the feature to determine feature function and the possible association with a use surface. As a rule, test units were 0.50 m x 2 m within the features and 1 m x 1 m outside the features. Vertical control consisted of excavating in arbitrary 10 cm levels, preferably within identified stratigraphic layers (natural or cultural). Units were excavated parallel to the ground surface, and this was a general rule followed throughout the project. The test units were usually set up on true north (11° easterly declination), and all four corners were mapped with the theodolite. The exceptions to setting the units to true north were those units placed within or next to structures or features.

Sediments from all units were screened through ¼" wire mesh. Artifacts collected from each level were assigned separate field specimen numbers. Artifacts found *in situ* were mapped in place in the unit and assigned point provenience numbers and a field specimen number.

A 33 cm x 33 cm control sample (1/9 of the level) from each level (10 cm) was retained for waterscreening through 1/16" hardware mesh. Waterscreen samples were processed at the laboratory at Fort Lewis College.

Field Recording

Field work was recorded on the appropriate PCMS/Fort Carson forms. Ancillary Fort Lewis College forms were used for field specimen inventories and for stratigraphic descriptions. Black-and-white photographs were taken throughout the testing.

Photographs were taken of the cross-sections, and two walls from each test unit were illustrated. Stratigraphic descriptions included information on pedogenic structure, Munsell color, soil texture, inclusions, reaction with hydrochloric acid, evidence of burning, soil horizon designation, and evidence of cultural features or artifacts. These descriptions and interpretations are included in the test unit discussions in Chapter 7.

Samples collected for special analysis included: soil samples, pollen samples, and radiocarbon samples. Samples selected for analyses depended on their perceived potential to contribute information about the site that would aid in eligibility determination.

The test units were backfilled and the sod layer replaced at the end of the project.

LABORATORY METHODS AND TECHNIQUES

Laboratory methods for this project followed those prescribed in Dean (1992). These specifications were rigorously followed throughout the laboratory analysis. Flaked-lithic analysis conducted by Fort Lewis also included analysis of nontool flaked-lithic debitage.

All artifacts were washed and rebagged after returning to the laboratory. The only exceptions were pollen-wash samples and metal artifacts. The metal objects were lightly brushed if necessary but were never washed.

Artifacts collected and analyzed consisted of flaked and ground stone artifacts and historic artifacts. No prehistoric ceramics were recovered from this project.

Flaked-Lithic Artifacts

Flaked-lithic artifacts were divided into the following categories: bifaces, flake tools, cores, blocks, split pebbles, complete flakes, and broken debitage. These categories are the prescribed categories from the PCMS manual (Dean 1992), and all artifacts were recorded under these categories.

Flaked-lithic tools

Classification of projectile points was based on two primary sources: Lintz and Anderson (1989), and Fulgham and Anderson (1984). On occasion other sources were consulted that included Andrefsky (1990), Gunnerson (1989), Ireland (1968), Irwin and Irwin (1959), Irwin-Williams (1967), Irwin-Williams and Irwin (1966), and Wood and Bair (1980). Raw material-type classifications for flaked and ground stone artifacts followed Ahler (1992).

Nontool Debitage

Nontool debitage was cataloged as broken debitage (Dean 1992) under the PCMS classification system (Dean 1992). Laboratory analysis went beyond this gross classification using the methods of Sullivan and Rozen (1985:755-779). Their approach is designed to describe distinctive assemblages of artifacts rather than the more traditional analysis, which describes assemblages of distinctive artifacts. Furthermore, the authors argue that current debitage analysis is based on the assumption that technological origins can be identified from key attributes alone when the technological origins of most artifacts cannot be individually determined because reduction often proceeds as a continuum rather than as a sequence of discrete stages. Sullivan and Rozen (1985:756-757) propose a hierarchical key to enhance "interpretation-free" categories and objectivity. Their key has three dimensions of variability. Each dimension has two naturally dichotomous attributes.

The nontool debitage was separated into four categories: debris, flake fragments, broken flakes, and complete flakes. Complete flakes were separated from all other debitage based on the following characteristics: single interior surface, intact striking platform (point of applied force or impact), and intact margins. A single interior surface possesses ripple marks, force lines, or a bulb of percussion. The point of applied force exhibits an intact striking platform. Margins are intact if the distal end exhibits a hinge or feather termination, or if snap breaks do not interfere with accurate width measurements. The length of complete flakes is the maximum length of the flake from the point of impact to the point where a 90° line intersects the bottom of the flake. The width is measured at the maximum width of the flake perpendicular to the percussion axis.

Groundstone Artifacts

These artifacts were examined for shaping, grinding, and battering. Whenever possible, the distinction was made between metates and manos according to the PCMS field and laboratory manual (Dean 1992).

Historic Artifacts

Historic artifacts were also analyzed using the standards required by the PCMS (Dean 1992). The artifacts were cataloged and entered on the appropriate PCMS forms. Sources used to identify historic artifacts included: Barber (1987), Carrillo et al. (1989), Gillio et al. (1980), Kempton and Baber (1990), and Stadt (1984).

Special Samples

Samples obtained from the field for special analysis included soil, pollen samples, radiocarbon, and waterscreen.

Soil Samples

A large portion of the general sediment analysis was accomplished while in the field. This included such observations as pedogenic structure, Munsell color, presence or absence of calcium carbonate, general soil description, general texture, inclusions, and depositional processes. The laboratory work included refining the soil texture definitions through LaMotte Soil Texture analysis and examination of the sand fraction under a 30 X power microscope. Soil samples from each unit were cataloged and retained for curation.

Radiocarbon Samples

Charcoal for radiocarbon analysis was obtained from one stratum in the field. This sample was submitted for AMS radiocarbon dating to Beta Analytic, Inc. of Miami, Florida (Appendix II).

Pollen Samples

Samples for pollen analyses consisted of two types: sediment and pollen wash. The artifacts selected for pollen washes were double bagged in the field in paper bags.

Flotation Samples

Flotation samples were processed with a barrel flotation system. The heavy fraction was collected in 1/32 in. mesh window screen. The light fraction was collected using chiffon cloth. The heavy fraction was sorted using a 10X fluorescent magnification light. Artifacts recovered within the heavy fraction samples were removed, analyzed, and cataloged. After the artifacts were removed from the sample, the remaining sand and rock were discarded. The light fraction samples were scanned to detect presence or absence of materials including charcoal, seeds, roots, snails, and bug particles. Light-fraction samples were bagged, catalogued, and retained for curation. Besides charcoal and nonartifactual materials, the flotation samples produced no other remains.

Recording

Recording was completed on PCMS forms appropriate for each level of analysis, and they were completed in strict accordance with the standards and guidelines provided in the PCMS manual (Dean 1992). The cataloging and artifact analyses were completed on appropriate PCMS documentation forms. The data were computerized in dBase III Plus and saved to diskettes. Most of the analysis and cataloging was completed by Fort Lewis students. Their work was routinely monitored by professional archeologists so that the quality and consistency of their work conformed to the procedural guidelines (Dean 1992).

CHAPTER 6

INVENTORY RESULTS

Introduction

A cultural resource inventory of 827 acres of portions of Cheyenne Mountain and Timber Mountain in the FCMR, El Paso County, Colorado was conducted by Fort Lewis College from May 19 through June 27, 1996. The cultural resource inventory resulted in the identification and recording of 27 cultural properties, which include 16 newly recorded sites (Table 6.1), 6 previously recorded sites (Table 6.2) and 11 isolated finds (Table 6.3).

Isolated Finds

Over the course of the field season, 11 isolated finds were recorded. Basic descriptive data is presented in Table 6.3. Isolated finds ranged from a single artifact to four pieces of solarized glass. Isolated finds, by their definition (Dean 1992) are not eligible for recommendation.

Archeological Sites

General descriptive information for each site recorded during the 1996 inventory is presented in Table 6.1. The 16 newly recorded sites are dominated by open, prehistoric flaked-artifact and flaked and ground stone artifact scatters (N=10), followed by linear historic features (N=3), and 3 multi-component historic and prehistoric artifact scatters.

Three of the sites (5EP2522, 5EP2524, 5EP2528) recorded during this inventory are recommended eligible for nomination to the NRHP based on the potential for buried cultural deposits (Table 6.1). The remaining 13 sites are recommended as not eligible for nomination to the NRHP due to their limited potential to produce significant data about the prehistory or history of the area. None of the historic sites recorded are considered significant resources. Of the six previously recorded sites (Table 6.2) two are recommended as eligible for nomination to the NRHP.

In the following section, summary descriptions of each archeological site recorded during this project are provided. These descriptions include information on general site characteristics, the geomorphic context, diagnostic artifact descriptions, and eligibility recommendations.

Table 6.1. Descriptive Data for Archeological Sites Recorded by Fort Lewis College, 1996.

State Site Number	U.S.G.S. 7.5' Quadrangle	Township	Range	Section	Temporal Affiliation *P/H/MC	Description	Eligibility Recommendation
5EP2520	Timber Mountain	17 S	66 W	18	MC	Historic artifact scatter with a very light prehistoric artifact scatter	Not Eligible
5EP2521	Timber Mountain	17 S	66 W	18	MC	Historic artifact scatter with a very light prehistoric artifact scatter	Not Eligible
5EP2522	Cheyenne Mountain	16 S	67 W	12 & 11	P	Large flaked and ground stone scatter along the top of a ridge	Eligible
5EP2523	Cheyenne Mountain	16 S	67 W	12	P	Flaked and ground stone scatter along an eroding slope	Not Eligible
5EP2524	Cheyenne Mountain	16 S	67 W	12	MC	Large but sparse flaked artifact scatter, historic artifact scatter, and historic linear features	Eligible
5EP2526	Timber Mountain	17 S	66 W	18	P	Large but sparse lithic artifact scatter along the top of the mesa	Not Eligible
5EP2527	Timber Mountain	17 S	66 W	18	P	Light artifact scatter along the edge of the mesa	Not Eligible
5EP2528	Timber Mountain	17 S	66 W	17	P	Flaked and ground stone scatter along the edge of a pediment	Eligible
5EP2532	Timber Mountain	17 S	66 W	18	P	Light artifact scatter along a narrow finger of a mesa	Not Eligible

State Site Number	U.S.G.S. 7.5' Quadrangle	Township	Range	Section	Temporal Affiliation *P/H/MC	Description	Eligibility Recommendation
5EP2533	Timber Mountain	17 S	66 W	18	P	Light flaked and ground stone scatter on narrow finger of mesa	Not Eligible
5EP2535	Timber Mountain	17 S	66 W	18	P	Stone circle	Not Eligible
5EP2539	Timber Mountain	17 S	66 W	17	P	Light flaked artifact scatter	Not Eligible
5EP2547	Cheyenne Mountain	16 S	67 W	12	P	Light flaked artifact scatter	Not Eligible
5EP2548	Cheyenne Mountain	16 S	67 W	12	H	Two check-dams	Not Eligible
5EP2550	Cheyenne Mountain	16 S	67 W	12	H	Historic boulder alignment	Not Eligible
5EP2551	Cheyenne Mountain	16 S	67 W	12	H	Transportation route with historic artifact scatter	Not Eligible

*H=historic, P=Prehistoric, MC=Multi-component

Table 6.2. Descriptive Data for Sites Reevaluated by Fort Lewis College, 1996.

State Site Number	U.S.G.S. 7.5' Quadrangle	Township	Range	Section	Temporal Affiliation *P/H/MC	Description	Eligibility Recommendation
5EP46	Timber Mountain	17S	67W	12	P/H	Historic graffiti and prehistoric (?) grooves in small shelter	Eligible
5EP48	Timber Mountain	17S	66W	7	P	Unable to locate	Not eligible
5EP49	Timber Mountain	17S	67W	12	P	Unable to locate	Not Eligible
5EP84	Timber Mountain	17S	66W	12	P	Unable to locate	Not Eligible
5EP163	Timber Mountain	17S	67W	12	P	Ceramic periods site with ceramics and flaked-lithic artifacts, and groundstone, along an alluvial terrace, intensively disturbed	Not Eligible
5EP165	Timber Mountain	17S	67W	12	P	Buried Ceramic period site with charcoal, ceramics, flaked-lithic artifacts, along an alluvial terrace	Eligible

*H=historic, P=prehistoric, MC= Multi-component

Table 6.3. Descriptive Data for Isolated Finds Recorded by Fort Lewis College, 1996.

State Isolated Find Number	U.S.G.S. 7.5' Quadrangle	Township	Range	Section	Isolated Type *P/H	Description
5EP2536	Timber Mountain	17 S	66 W	18	P	1 retouched flake
5EP2525	Cheyenne Mountain	16 S	67 W	12	P	core fragment
5EP2529	Cheyenne Mountain	16 S	67 W	12	H	4 pieces of solarized glass
5EP2530	Cheyenne Mountain	16 S	67 W	12	P	1 flake
5EP2531	Timber Mountain	17 S	66 W	18	P	1 flake
5EP2534	Timber Mountain	17 S	66 W	18	P	1 projectile point fragment
5EP2537	Timber Mountain	17 S	66 W	18	P	1 core with utilized edge
5EP2538	Timber Mountain	17 S	66 W	17	P	1 core fragment
5EP2545	Cheyenne Mountain	16 S	67 W	12	P	3 flakes

State Isolated Find Number	U.S.G.S. 7.5' Quadrangle	Township	Range	Section	Isolated Type *P/H	Description
5EP2546	Cheyenne Mountain	16 S	67 W	12	P	1 sandstone mano
5EP2549	Cheyenne mountain	16 S	67 W	12	P	1 flake

*H=Historic, P=Prehistoric, U=Unknown

5EP2520 Site 5EP2520 is a multi-component historic and prehistoric artifact scatter. The site is situated on a finger ridge that extends to the south-southeast along the edge of a prominent mesa that separates Turkey and Sand Creek drainages on the Timber Mountain, United States Geological Survey, 7.5' quadrangle. Ephemeral drainages flank both sides of the ridge. Site elevation is 6260 ft (1908 m) asl. The aspect is to the south-southeast with a slope of 0-10°. Maximum sediment depth is 10 cm. The sediments are a gravelly silt loam. Piñon and juniper, mountain mahogany, prickly pear cactus, yucca, and various The site is a historic trash scatter and a prehistoric flaked-lithic artifact scatter covering an area 65 m x 25 m (Figure 6.1). Artifacts are exposed primarily in an open area on the ridge. Artifact density for both the historic and prehistoric components is low. The historic artifacts consist primarily of ceramic and glass. Two machine-made brick fragments and a hole-in-top can (opened with a can opener) complete the historic assemblage. Glass artifacts include bottle glass and approximately twenty pieces of plate glass. Solarized, aqua, brown, dark green, and clear bottle glass are present. Two pieces of solarized glass were collected and exhibit intentional flaking along one edge. The solarized glass dates to pre-1917, as may the dark green glass. The remains of at least eight bottles were identified by color, maker's mark, and bottle finish. The ceramic assemblage includes fragments of two earthenware plates with decalcomania designs and fragments of two semi-porcelain cups or bowls, one with a relief-molded design and the other with decalcomania design (Zier et al. 1987). The maker's mark found on one of the plates dates to post-1891 (Kovel and Kovel 1953: 208a). A background check of historic land entries for this area shows that Mr. Otto Dein filed a Homestead Entry for this portion of Section 18 on July 14, 1908 (Zier et al. 1987: Appendix E). Recent military trash, consisting of sanitary cans, lids, ammunition clips, rubber fragments and a key, is widely scattered over the site. No surface structures or other historic features were noted, and deliberate trash disposal is inferred. Military disturbance to the site is light.

The prehistoric component is a light flaked-lithic artifact scatter. Four fine-grained quartzite flakes, one chalcedony debris, and one orthoquartzite flake were observed within a 15 m x 10 m area. No diagnostic artifacts are present, and the flakes are inferred to be from primary core reduction.

Subsurface artifacts are unlikely due to the apparent shallow sediment depth and the brief occupation implied from the light scatter. Site function is inconclusive due to the paucity of artifacts and absence of diagnostic artifacts. The site probably represents a temporary or seasonal use of this area. There are many similar sites within the FCMR. The site is not eligible for nomination to the NRHP, because the potential for significant buried deposits at this location is low. The site was recorded, mapped, and photographed, and the artifacts were analyzed. No further archeological work is recommended at the site.

5EP2521 Site 5EP2521 consists of several prehistoric artifacts and a historic trash scatter on the Timber Mountain, United States Geological Survey, 7.5' quadrangle. Located on a mesa top 40 m south of a two-track road, the site is along the canyon rim, overlooking

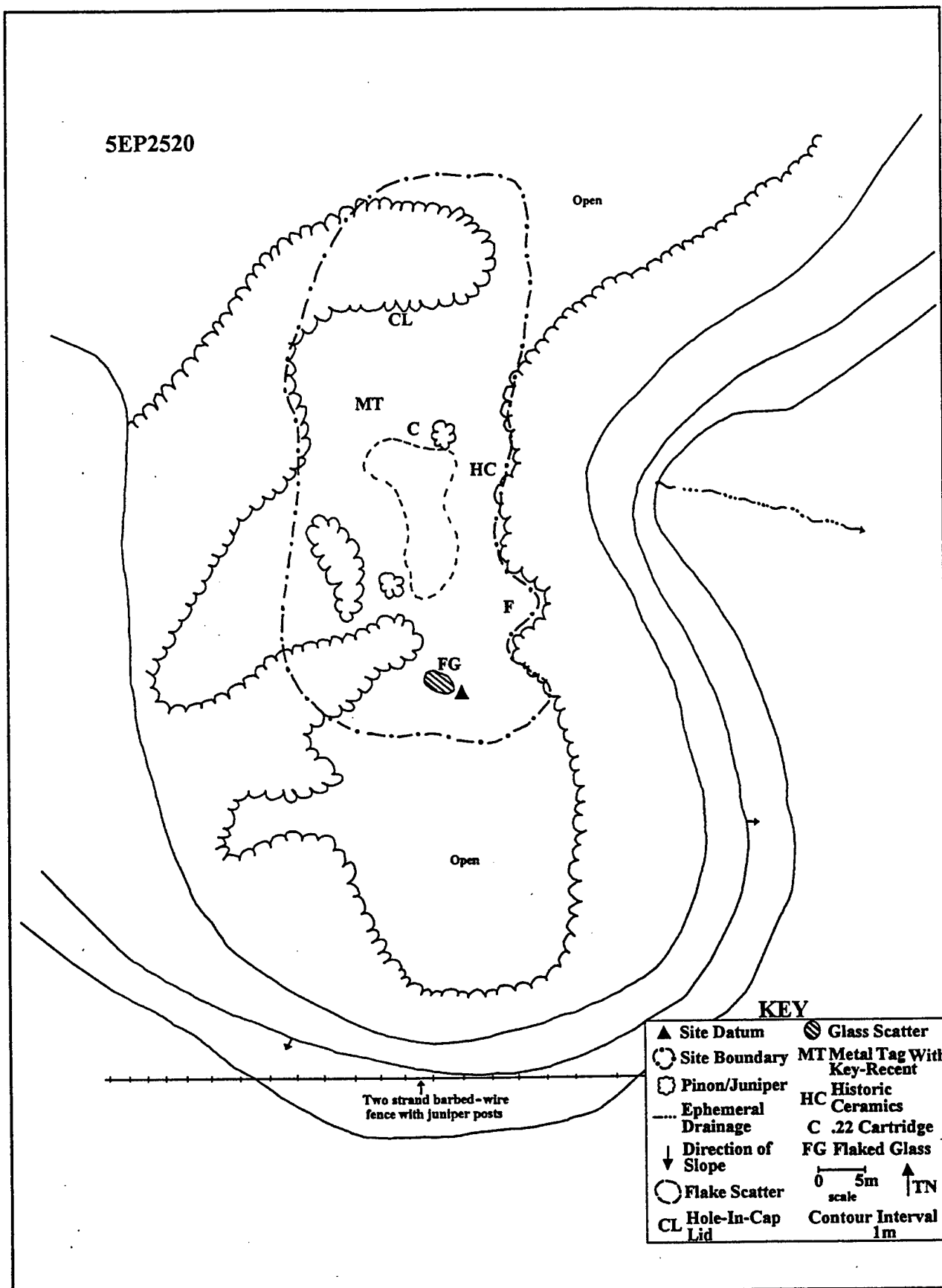


Figure 6.1. Site map, 5EP2520.

a deep canyon to the south-southeast. On-site vegetation is a piñon and juniper woodland. Mountain mahogany, yucca, prickly pear cactus, and a variety of grasses are also present. An open prairie lies to the north-northwest. Site elevation is 6260 ft (1908 m) asl with a south-southwest aspect. The mesa top where the site is located has a slope of only a few degrees. Sediment depth is shallow (maximum of 10 cm) and consists of a gravelly silt loam. The sediment matrix is derived from the sandstone bedrock with some eolian silt (loess). The nearest water source is an unnamed ephemeral drainage 50 m from the site.

This multi-component site consists of a light, historic trash scatter and two prehistoric artifacts. The historic materials include glass, ceramic, and metal artifacts. The glass artifact are limited to the remains of one solarized bottle and one solarized glass bowl with a scalloped rim. Fragments of two earthenware plates and one small piece of semi-porcelain comprise the ceramic artifacts. One plate possesses a decalcomania floral and vase design. One hole-in-top can lid and one wire nail fragment complete the non-military historic artifact assemblage. The solarized glass dates to pre-1917. A check of historic land entries for this location indicates that Mr. Otto Dein filed a Homestead Entry for this portion of Section 18 on July 14, 1908 (Zier et al. 1987: Appendix E). Surface structures or historic features are not present. The historic artifacts are probably a result of deliberate trash disposal. Recent military trash (cartridge casings, sanitary cans, and a military medal) is littered across the 41 m x 30 m site (Figure 6.2). The prehistoric component consists entirely of one artifact and one possible artifact: a broken chert flake and one possible sandstone mano (12 cm x 9 cm x 7 cm). The later exhibits no obvious use-wear (striations or pecking), but is clearly mano in shape and is not in a proper geologic context.

The site probably represents a temporary or seasonal use of this area, both prehistorically and historically. There are many similar sites within the FCMR. The site is not eligible for nomination to the NRHP, because the potential for significant buried deposits at this location is low. The site was recorded, mapped and photographed, and the artifacts were analyzed. No further archeological work is recommended at the site.

5EP2522 Site 5EP2522 is an extensive flaked and ground stone scatter situated at the top of a west-northwest to east-southeast trending ridge on Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle. This ridge is bounded to the south by Deadman Canyon and to the north by Little Fountain Creek. Site aspect is open, with a gentle, 0-5° slope. Elevation of the site is 6330 ft (1929 m) asl. The sediment matrix is a relatively deep (10-30 cm) brown, gravelly sand loam, which overlies Pleistocene gravel. The site has excellent access to Little Fountain Creek and Deadman's Canyon, both are perennial water sources. Piñon and juniper and Gambel oak are the dominant vegetation, with lesser amounts of yucca, mullein, and grasses. The site has been disturbed by military activities and significant slope wash; most artifacts were observed in concentrations within gullies and on erosional surfaces. These artifact concentrations are the net result of differential surface exposure rather than of deliberate prehistoric distribution.

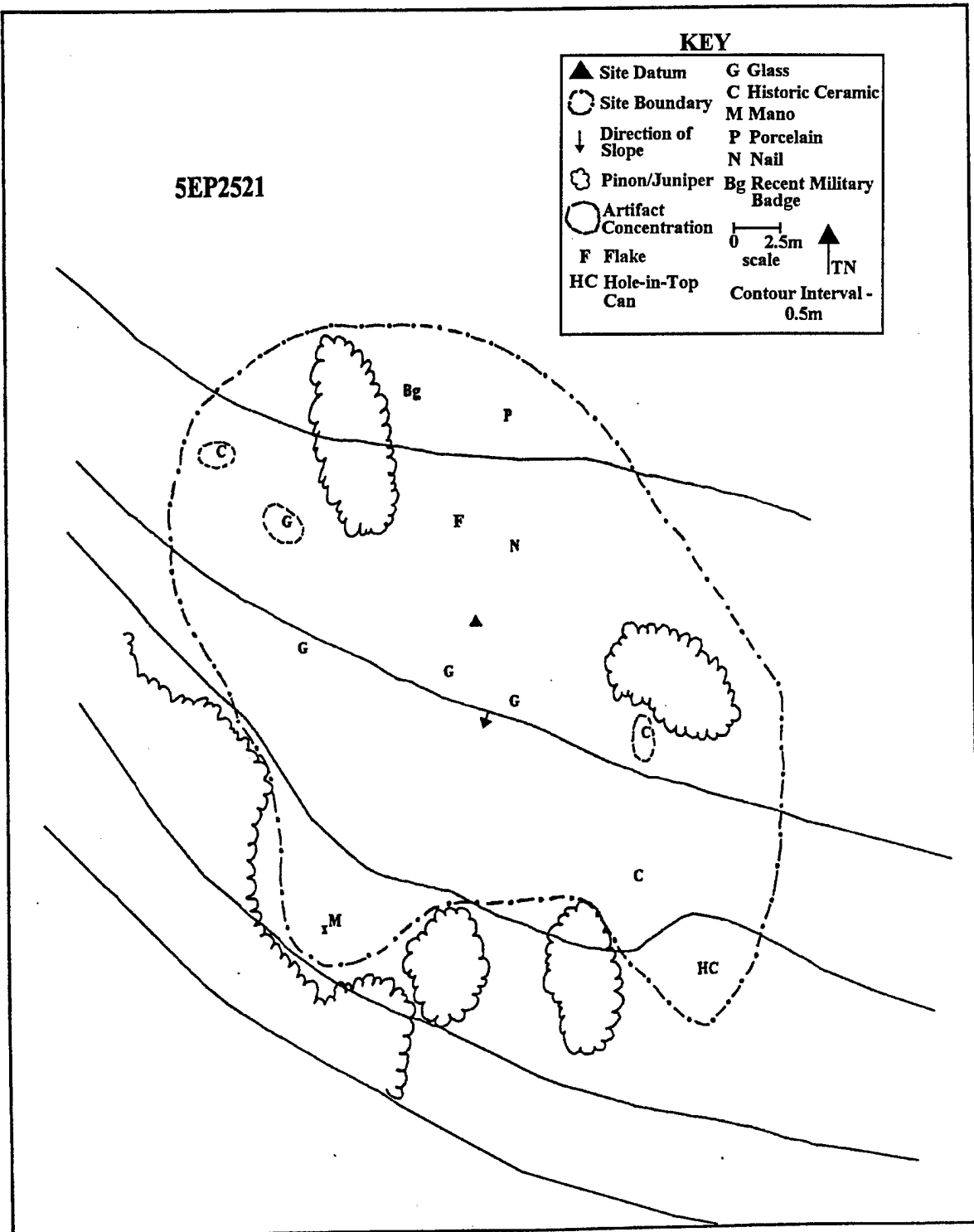


Figure 6.2. Site map, 5EP2521.

The site is extensive and covers the entire ridge from the property line to the west to the east end of the ridge. The site averages 105 m east-west by 35 m north-south (Figure 6.3). Due to the large size of this site and the large number of artifacts, a selective sample of the artifacts was analyzed and inventoried. Three spatially separate areas were chosen for analysis. Area 1 is located near the center of the site and surrounds the main site datum. Area 2 is located on the west end of the site, and Area 3 is located on the east end of the site. These areas provided a selective sample of the total surface artifacts present.

The sampling strategy was modified from Dean (1992) to take into account the natural setting and management goals of the inventory as defined in the proposal (Duke 1996). A total of 132 artifacts was field analyzed during the inventory of the three sample areas. These comprised forty tools and ninety-two pieces of nontool flaked-lithic debitage. Because the artifacts were distributed among obvious concentrations, the concentrations were sampled. The forty tools include the following: twenty-four cores or core fragments (twenty chert, two quartzite, and two chalcedony), six broken bifaces (three chert, two chalcedony, and one quartzite), one beveled chert scraper, three chert retouched flakes, and three utilized flakes (one quartz and two orthoquartzite). A sandstone metate fragment and a complete igneous mano were the only groundstone artifacts noted. A cylindrical piece of chert that exhibits heavy smoothing may represent a decorative or symbolic item. This artifact was collected. Chert accounts for over 70% of the raw material used for the tools. Small percentages of chalcedony, quartzite, orthoquartzite, and quartz are also present.

Ninety-two pieces of nontool flaked-lithic debitage (Table 6.4) were analyzed from the sample areas. Chert accounts for over 70% of the nontool flaked-lithic debitage. In Area 3, 90% of the artifacts are chert, with no chalcedony. In Areas 1 and 2, chalcedony accounts for 14% of the total material types. Orthoquartzite (8%), quartzite (3%), and igneous (2%) comprise the remainder of the total nontool flaked-lithic assemblage.

Table 6.4. Nontool Flaked-Lithic Debitage From a Sample Transect, 5EP2522.

Material Type					Flake Type	Total (%)
Chert	Chalcedony	Quartzite	Orthoquartzite	Aphanitic Igneous		
7	0	0	0	0	Complete	7 (7)
11	5	2	1	1	Broken	20 (22)
22	5	0	5	1	Fragment	33 (36)
27	3	1	1	0	Debris	32 (35)
67 (73)	13 (14)	3 (3)	7 (8)	2 (2)	Total (%)	92 (100)

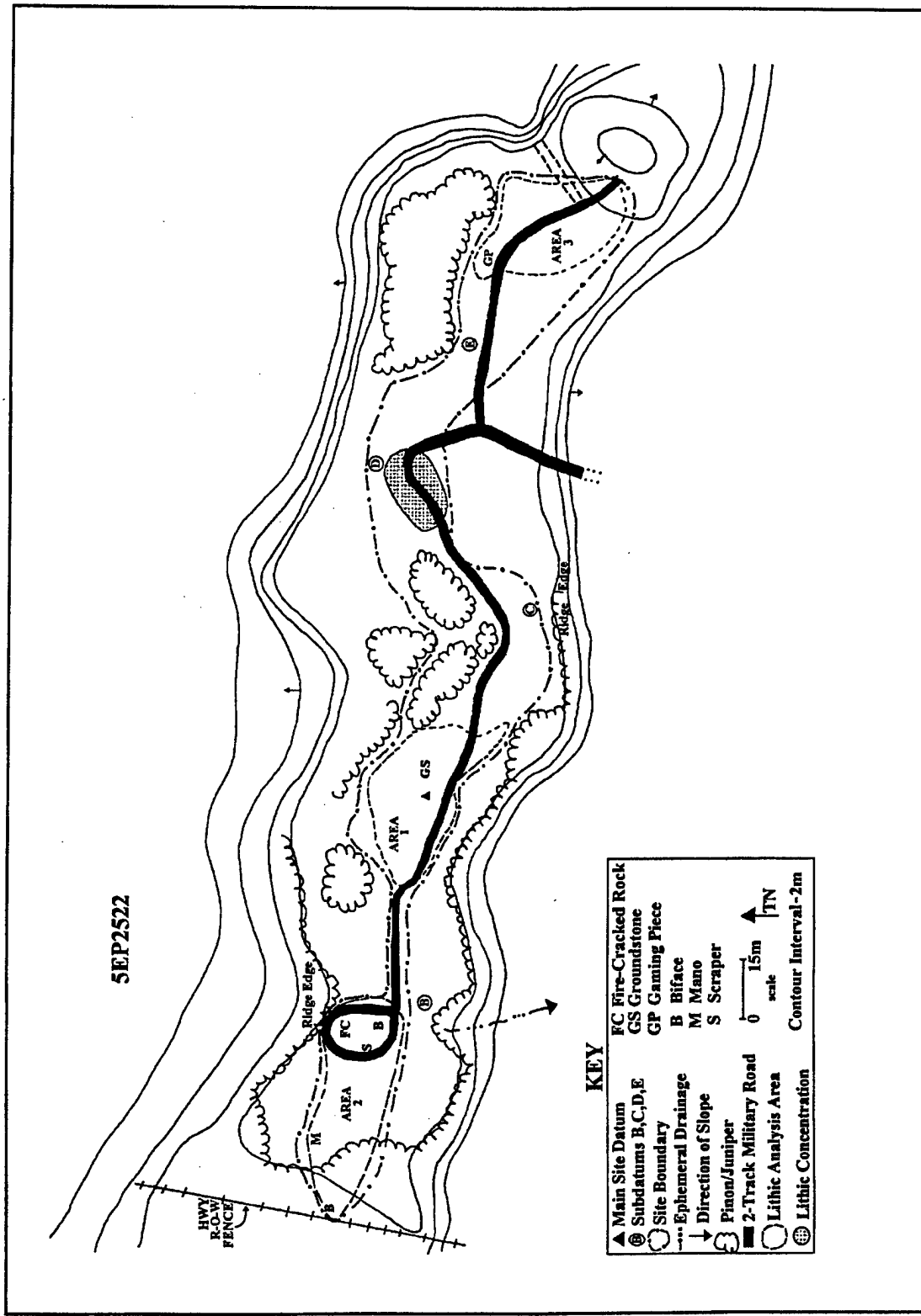


Figure 6.3. Site map, 5EP2522.

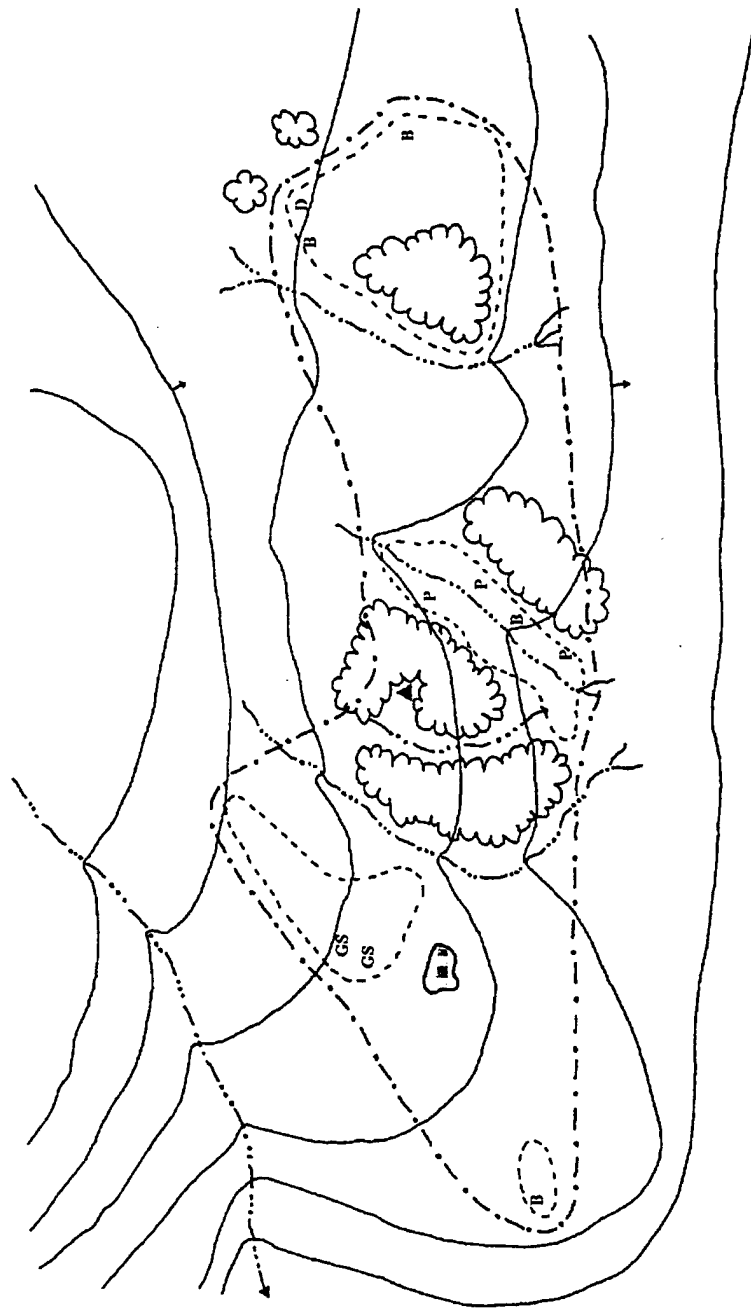
Broken flakes and flake fragments, which are characteristic of tool manufacturing, represent 58 percent of the total nontool flaked-lithic assemblage. The presence of eight cores and sixteen core fragments with a high percentage of debris (35%) is representative of intensive core reduction. Based on the nontool flaked-lithic debitage, it is inferred that both tool manufacturing and intensive core reduction occurred at the site.

The large number of artifacts and the variety of tools suggest that this site may have served as a base camp. The artifact assemblage indicates that activities at the site may have include flaked-lithic tool manufacture, core reduction, and plant processing. The depth of sediments and the large number of artifacts at the surface indicate that the site has a good potential for buried artifacts and features, although diagnostic artifacts were not recovered from the surface. It is, therefore, recommended that the site is eligible for nomination to the NRHP. This evaluation is based on the potential for this site to yield information important to the research themes of settlement patterns and economics for the FCMR (Zier et al. 1987:2-19-35), and to the research domains outlined by Eighmy (1984) for the Colorado Plains. Specifically, the site could contribute to an understanding of resource exploitation and procurement within the Plains-Mountain Transition.

5EP2523 5EP2523 is a flaked and ground stone scatter located on a heavily eroding slope directly south of the east end of the narrow ridge where 5EP2522 is located (Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle). The slope flattens at the intersection with a terrace above Deadman Canyon, which is south of the site. The site aspect is to the south-southeast with a gentle slope of 0-6°. Large to medium size sandstone boulders dominate the site and overlie friable, powdery sediments. A pale tan, clay loam and a yellow-brown sand loam make up the sediment matrix, which extends 5-20 cm below the ground surface. Elevation is 6250 ft (1905 m) asl. Little Fountain Creek is a permanent water source only 180 m northeast of the site. The site is located at the plains-woodland transitional zone. Piñon and juniper, Gambel oak, and serviceberry dominate the woodlands while bunch grasses and prickly pear cactus are common in the open meadow to the southeast.

The dimension of the site is 105 m x 35 m (Figure 6.4). All observed artifacts were examined in the field, which included flaked-lithic tools and nontool debitage. Seventeen tools, both formal and expedient, represent nearly half (46%) of the total artifact assemblage. A wide range of tools are present and suggest a range of activities took place here. The tools include two sandstone manos, one quartz unifacial tool, three retouched chert flakes, three chert bifaces, one chalcedony biface, one quartzite preform, one drill, one chert scraper, one chert core fragment, and three projectile points (Figure 6.5). The one complete, oval sandstone mano measures 7.4 cm x 5.5 cm x 4 cm and exhibits pecking on all edges. Grinding is evident on both faces as well. The projectile points are manufactured from quartzite, chert, and silicified wood. These point types indicate a broad temporal range (1000 B.C. - AD 1000). The complete quartzite projectile point (Figure 6.5a) closely resembles category P10 type (Lintz and Anderson 1989:250). The point has a dull tip, slightly convex blade edges, slightly rounded shoulders, shallow side-notches, an expanding stem, rounded

SEP2523



KEY

▲ Site Datum	GS Groundstone
○ Site Boundary	B Biface
--- Ephemeral Drainage	P Projectile Point
↓ Direction of Slope	D Drill
🌲 Pinon/Juniper	0 5m 10m scale
⊙ Boulder	↑ TN
○ Lithic Concentration	Contour Interval 2m

Figure 6.4. Site map, SEP2523.

tangs, and a straight base. The base is nearly as wide as the blade and is slightly ground. The blade is very slightly serrated and is plano-convex in cross-section (Lintz and Anderson 1989:124). The complete black chert projectile point (Figure 6.5b) best resembles category P35 or P36 types (Lintz and Anderson 1989:276,248). It has a dull tip, a broad triangular blade, straight blade edges, rounded shoulders, a broad expanding stem, pointed tangs, and a very slightly convex base. The haft is unground, the blades are unserrated, and the point is complete except for the extreme tip.

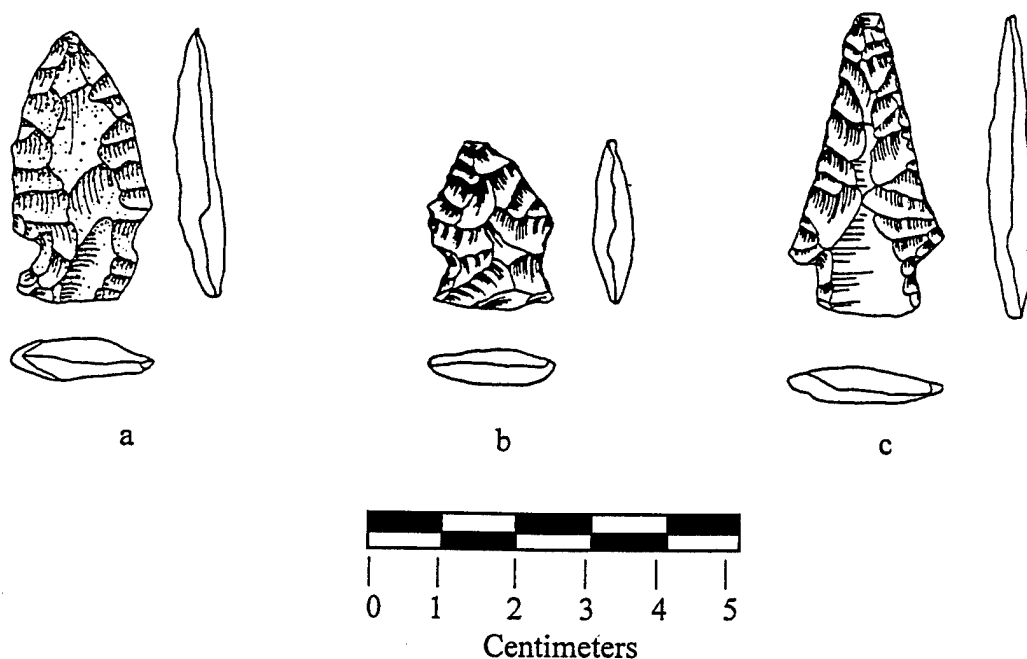


Figure 6.5 Projectile points collected from 5EP2523.

The projectile point is bi-convex in cross-section (Lintz and Anderson 1989:153-154). The third projectile point (Figure 6.5c) is made from brown silicified wood, and is nearly complete except for the extreme tip. This point was not placed within the projectile point type classification established by Lintz and Anderson (1989). This point is large and straight-stemmed. The overall length (estimated 43 mm) and the stem length (8 mm) do not compare with any of the discussed size ranges for large, straight-stemmed points in Lintz and Anderson (1989). The blade edges are straight to slightly concave, the shoulders are slightly rounded, and the base is slightly convex. The point is plano-convex in cross-section. The

remaining measurements include: width 20.4 mm; thickness 5.2 mm; blade length (estimated) 37 mm; blade width 20.4 mm; and base width 14 mm.

Chert is the dominant raw material type with 80% of the total flaked-lithic assemblage manufactured from this material. Quartzite represents 8%, the next highest percentage. Single artifacts of chalcedony, silicified wood, and quartz complete the lithic artifact assemblage.

The nontool flaked-lithic debitage is, except for one broken quartzite flake, comprised entirely of chert artifacts (Table 6.5). The high percentages of debris and complete flakes, which consists of 80% of the total, indicates that extensive core reduction was practiced at this location. Tools at the site are indicative of both hunting and gathering or food preparation.

Table 6.5. Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2523.

Material Type		Flake Type	Total (%)
Chert	Quartzite		
5	0	Complete	5 (25)
3	0	Broken	3 (15)
1	0	Fragment	1 (5)
10	1	Debris	11 (55)
19 (95)	1 (5)	Total (%)	20 (100)

Despite the presence of thirty-seven flaked and ground stone artifacts, including three diagnostic projectile points representing a long temporal range, the site is recommended not eligible for the NRHP. Artifact provenience has been significantly compromised through extensive erosion, which is on-going at this location. The site has been mapped, recorded and photographed, and all surface artifacts have been field analyzed. No further archeological work is recommended at this site.

5EP2524 Site 5EP2524 is an expansive site that consists of numerous stone features and a sparse flaked-lithic scatter. A detailed discussion of the site along with the results from site testing is presented in Chapter 7.

5EP2526 Site 5EP2526 is a moderately dense prehistoric flaked-lithic artifact scatter on the Timber Mountain, United States Geological Survey, 7.5' quadrangle. The site is

located along a narrow east-west trending ridgetop, with steep slopes to the south and north. The ridge extends to the southeast from a long, narrow mesa top. This mesa separates the Turkey and Sand Creek drainages. Two-track roads bisect the site. Elevation of the site is 6240 ft (1902 m) asl and aspect is to the south-southeast. Slope along the top of the ridge is a minimum of 2°. A maximum sediment depth of 10-15 cm was determined by shovel tests. The sediment matrix is a gravel loam formed from residual weathering. An unnamed, ephemeral drainage, 260 m south of the site, provides the nearest water source. Piñon and juniper, prairie grasses, mountain mahogany, prickly pear cactus, and yucca are the local vegetation.

The prehistoric lithic scatter measures 105 m x 110 m (Figure 6.6). The site exhibits heavy vehicular disturbance, which has compromised the provenience of the artifacts. A total of 91 artifacts was observed on the surface. These artifacts include three retouched chert flakes, two retouched chalcedony flakes, one retouched orthoquartzite flake, one utilized chert flake, seven chert bifaces, one orthoquartzite biface, four chert core fragments, and seventy-two pieces of nontool flaked-lithic debitage (Table 6.6).

Chert constitutes half of the total nontool-lithic artifact assemblage. Chalcedony and orthoquartzite are well represented while the presence of quartzite is minimal. All four flake types, however, are well represented. The total flaked-lithic assemblage indicates that both tool manufacture and core reduction were conducted at the site.

Table 6.6. Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2526.

Material Type				Flake Type	Total (%)
Chert	Chalcedony	Quartzite	Orthoquartzite		
5	4	0	2	Complete	11 (15)
10	4	2	4	Broken	20 (28)
2	7	1	2	Fragment	12 (17)
19	3		7	Debris	29 (40)
36 (50)	18 (25)	3 (4)	15 (21)	Total (%)	72 (100)

This site is interpreted to represent a limited activity area, possibly representing seasonal use of the uplands. Two non-random shovel tests did not recover any artifacts, charcoal, or other evidence of buried archeological deposits. The very shallow sediment depth and the heavy disturbance from vehicular use outweigh the significance of the high number of flaked-lithic tool and nontool flaked-lithic debitage present at this site. The probability is low that the site possesses either significant buried deposits representing

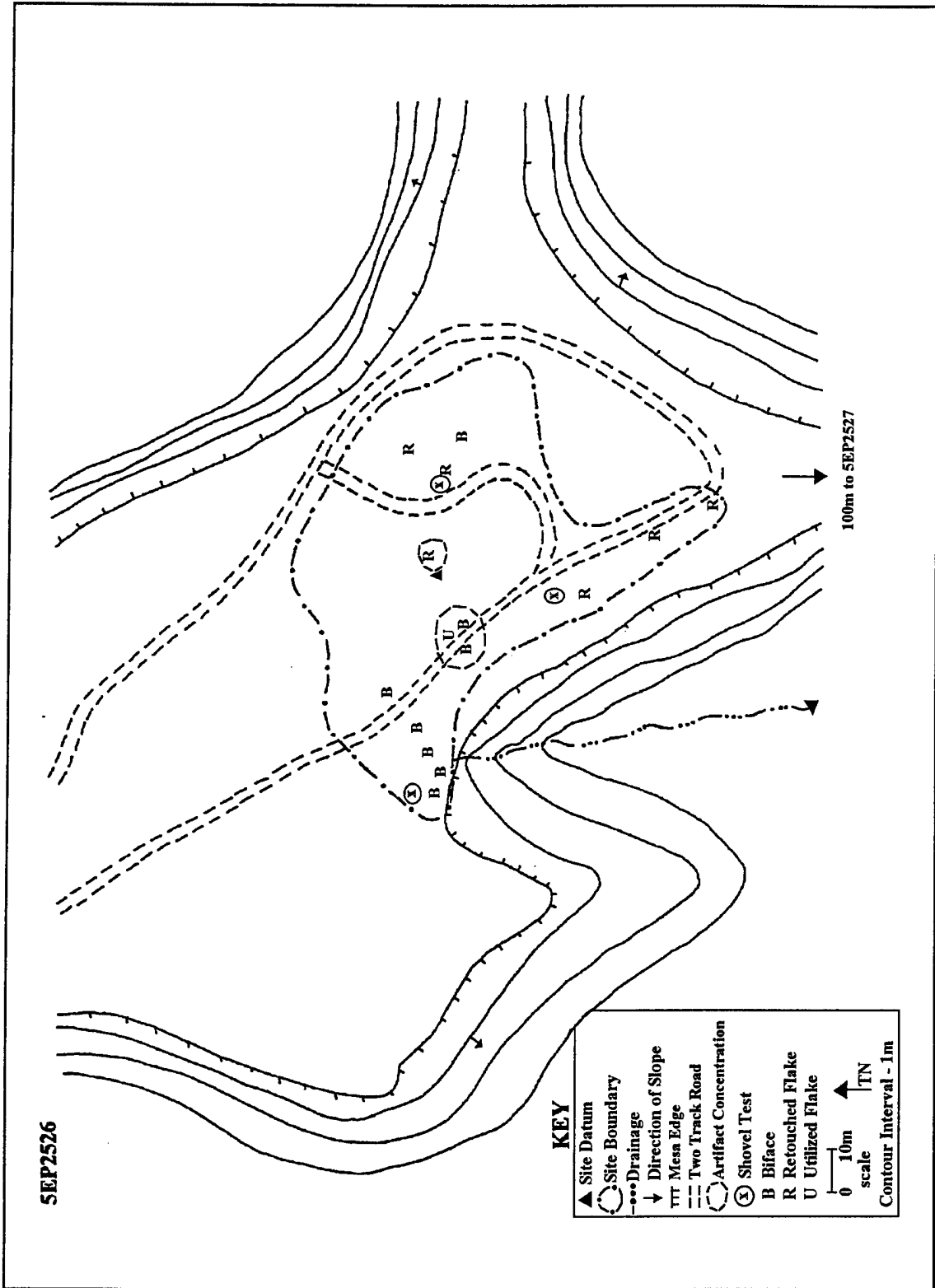


Figure 6.6. Site map, 5EP2526.

habitation surfaces and features, or a significant yield of artifacts. Therefore, it is recommended that the site is not eligible for nomination to the NRHP. The site has been mapped, recorded and photographed, and all surface artifacts have been field analyzed. No further archeological work is recommended at the site.

5EP2527 Site 5EP2527 is a sparse prehistoric flaked-lithic artifact scatter. It is located on Timber Mountain, United States Geological Survey, 7.5' quadrangle along a narrow, southeast-trending finger ridge on the east side of a north-south trending mesa that separates the Turkey Turkey and Sand Creek drainages. The site overlooks a drainage to the west-

southwest and the plains to the east. Site elevation is 6230 ft (1899 m) asl. The site measures 76 m x 45 m and has an aspect to the southeast with a 0-5° slope (Figure 6.7). Maximum sediment depth is shallow: 0-20 cm. The sediments are a light gray brown, gravelly silt loam. An unnamed ephemeral drainage is 240 m west-southwest of the site. On-site and surrounding vegetation includes Piñon and juniper, mountain mahogany, grama grass, and various other grasses.

A total of 23 flaked-lithic artifacts were recorded on the surface. These artifacts include one chalcedony projectile point fragment, one chert unifacial tool, one quartz unifacial tool, one chert biface, two chert core fragments, and seventeen pieces of nontool flaked-lithic debitage. The projectile point base fragment (Figure 6.8) may represent a Middle-Late Archaic (5000-1000 B.C.) large-stemmed point type (e.g. Category P11 or P12

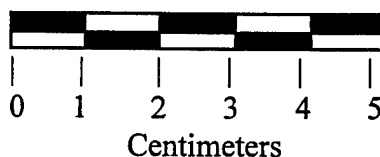
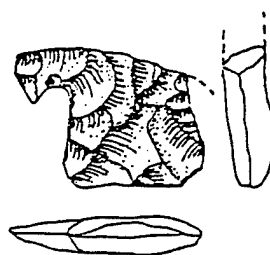


Figure 6.8 Projectile point collected from 5EP2527.
6.19

5EP2527

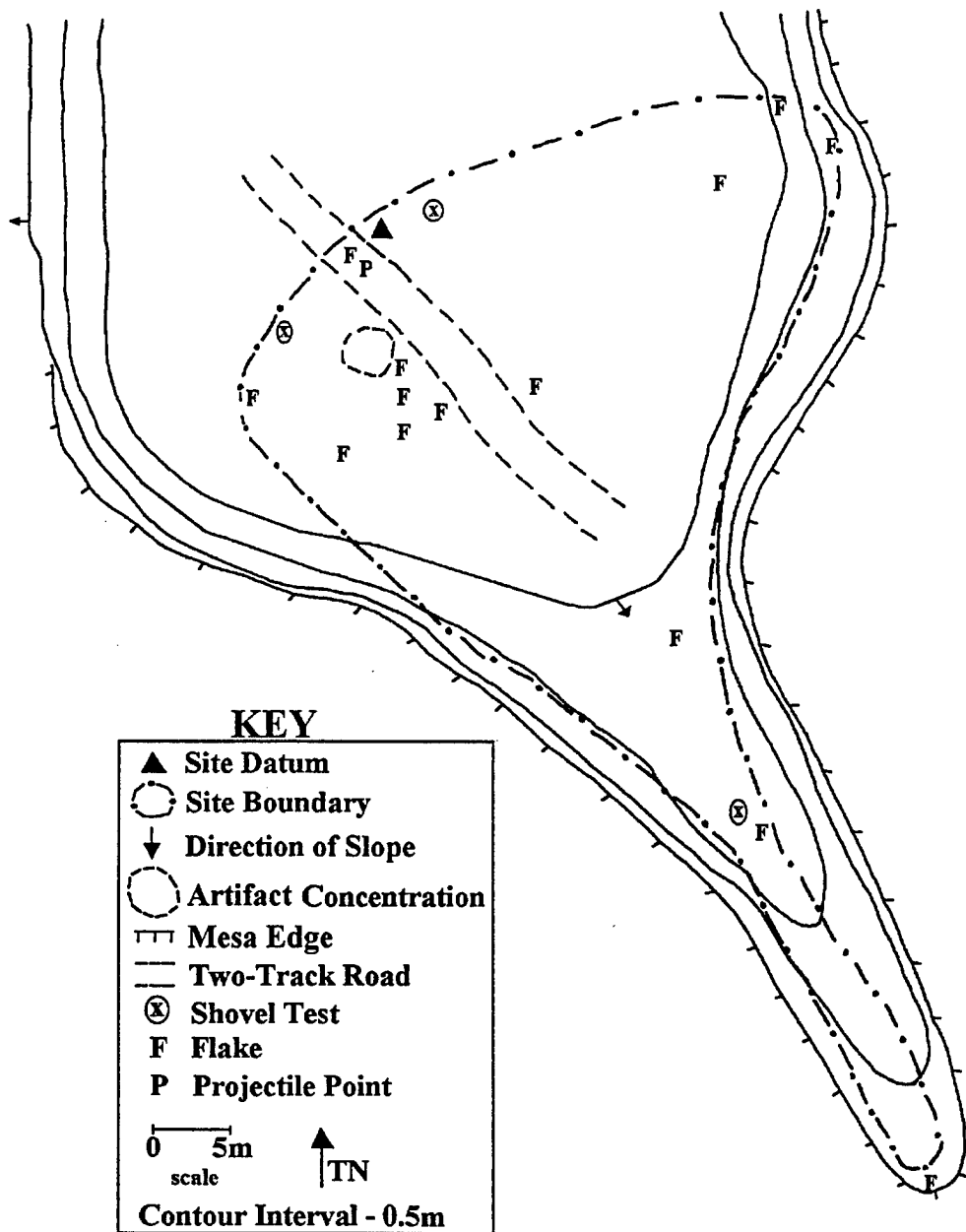


Figure 6.7. Site map, 5EP2527

[Lintz and Anderson 1989:242,252]). The point base fragment has barbed shoulders, squarish-rounded barbs, deep rounded notches, rounded tangs, and a very slightly convex base. The haft is ground.

This site, although small, has a wider range of raw material types than other sites of its size recorded during the survey. Chert and chalcedony are the dominant material types (75%). Although the amount of nontool flaked-lithic debitage is small (Table 6.7), the higher percentages of broken flakes and flake fragments suggest tool manufacture. Core reduction activities are also evident from the two core fragments and the high percentage of debris (29%).

Table 6.7. Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2527.

Material Type					Flake Type	Total (%)
Chert	Chalcedony	Quartzite	Orthoquartzite	Quartz		
0	1	0	0	0	Complete	1 (6)
0	3	1	0	1	Broken	5 (29)
4	1	1	0	0	Fragment	6 (35)
2	1	1	1	0	Debris	5 (29)
6 (35)	6 (35)	3 (18)	1 (6)	1 (6)	Total (%)	17 (100)

The site appears to represent a temporary Archaic hunting camp. Three nonrandom shovel tests were excavated at the site. They failed to reveal a buried cultural deposit. The shovel tests did indicate, however, that the sediment depth ranges from surface (0 cm) to 17 cm below the surface. Undisturbed subsurface cultural deposits are unlikely due to intensive military activity and the shallow sediment depth at the site. The shallow sediments, previous disturbances, and the limited number of artifacts indicate that the site be recommended as not eligible for the NRHP. The site was mapped and photographed, and the artifacts were analyzed in the field. No further archeological work is recommended at this site.

5EP2528 Site 5EP2528 is a prehistoric artifact scatter which includes one groundstone artifact. The site is located on a bench of a pediment on the Timber Mountain, United States Geological Survey, 7.5' quadrangle. The pediment extends eastward along the base of a mesa and onto the open plain to the east. An unnamed intermittent drainage lies 100 m to the north. The site has a slight easterly slope of 3-6°. Elevation of the site is 5990 ft (1826 m) asl with an aspect to the east-southeast. The sediment matrix consists of a sandy loam with interbedded gravel. Maximum sediment depth is 25 cm. Piñon and juniper are the dominant

vegetation in addition to sage brush, prairie grasses, mountain mahogany, yucca, and prickly pear cactus.

The site measures 60 m x 25 m (Figure 6.9). A total of 40 artifacts was observed on the surface. Tools account for 40% of the total surface assemblage. These include one small corner-notched projectile point, one large corner-notched projectile point, one chert scraper, four unifacial flake tools, one orthoquartzite chopper, one orthoquartzite preform, six chert core fragments, and one sandstone mano fragment. The presence of two temporally distinct projectile points may indicate that the site was occupied during two time periods (Figure 6.10). The larger and older projectile point closely resembles a crudely manufactured Category P7 type (Lintz and Anderson 1989:121). This projectile point has a sharp point, a convex blade edge, rounded shoulders, a very slightly contracting stem, rounded tangs, and a slightly convex base (15.0 mm width). The point has an unground stem, slightly serrated blade edges, and is plano-convex in cross-section (Lintz and Anderson 1989:114). Its maximum length is 41.8 mm, maximum width 33.5 mm, and maximum thickness is 7.9 mm. This point type is associated with the Late Archaic period (3000 B.C. - 1000 B.C.). The smaller, Late Prehistoric (A.D. 800 - A.D. 1450) corner-notched projectile point most resembles the category P62 type (Lintz and Anderson 1989:298). It has a sharp point, triangular convex blade, barbed shoulders, slightly expanding stem, rounded tangs, and a straight base. The haft is unground. The blade is slightly serrated, and the point is plano-convex in cross-section (Lintz and Anderson 1989:114). Maximum point dimensions are: length 19.4 mm, width 15.3 mm, and thickness 3.7 mm.

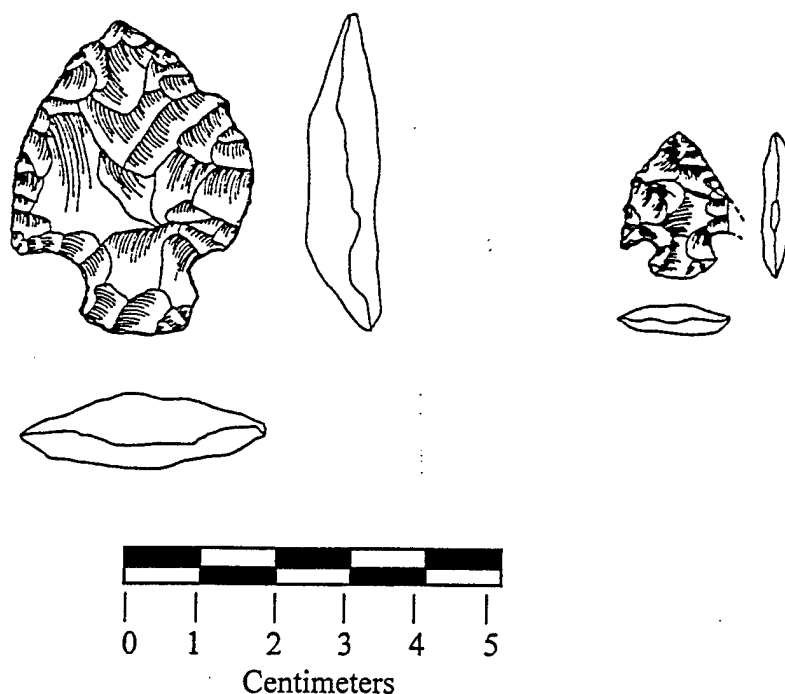
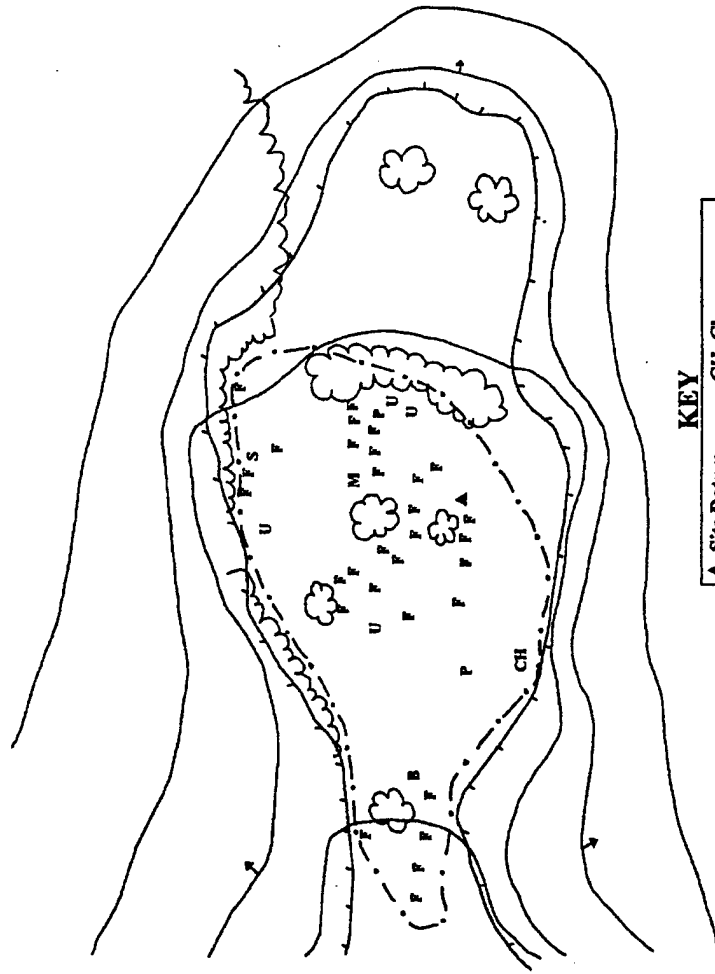


Figure 6.10 Projectile points collected from 5EP2528.

5EP2528



KEY

▲ Site Datum	CH Chopper
○ Site Boundary	P Projectile Point
↓ Direction of Slope	B Biface
○ Pinon/Juniper	M Mano
— Pediment Edge	S Scraper
0 5m scale	U Uniface
Contour Interval - 2m	F Flake

Figure 6.9. Site map, 5EP2528.

Nontool flaked-lithic debitage accounts for the other 24 artifacts (Table 6.8). Chert is the dominant material type accounting for 79% of the nontool flaked-lithic assemblage. Although the amount of nontool debitage is small, the higher percentage (67%) of debris suggests that intensive core reduction took place. The presence of six core fragments within the general assemblage suggests that the cores were reduced until exhausted.

Table 6.8. Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2528.

Material Type			Flake Type	Total (%)
Chert	Chalcedony	Orthoquartzite		
1	0	0	Complete	1 (4)
3	1	0	Broken	4 (17)
1	1	1	Fragment	3 (12)
14	2	0	Debris	16 (67)
19 (79)	4 (17)	1 (4)	Total (%)	24 (100)

Based on the variety of tools, both formal and expedient, the presence of a mano fragment, the potential for buried deposits, and the number of surface artifacts, the site may represent a seasonally occupied site that utilized the plains-foothills transitional zone. Activities inferred from the lithic assemblage include hunting and gathering, tool manufacture, and plant processing. The long temporal range of occupation and good sediment depth suggests the possibility for significant buried deposits. It is, therefore, recommended that the site is eligible for nomination to the NRHP. This evaluation is based on the potential for this site to yield information important to the research themes of settlement patterns and economics for the FCMR (Zier et al. 1987:2-19-35), and to the research domains outlined by Eighmy (1984) for the Colorado Plains. Specifically, the site could contribute to an understanding of resource exploitation and procurement within the Plains-Mountain Transition.

5EP2532 Site 5EP2532 is a very small flaked-lithic artifact scatter along the narrow finger of a mesa on the Timber Mountain United States Geological Survey 7.5' quadrangle map, at an elevation of 6270 ft (1911 m) asl. Aspect from the site is to the southeast. The degree of slope at the site is about 1 percent, but the surrounding slope is extreme on both sides of the site. The nearest water source is an unnamed drainage 60 m from the site. Sediments at the site are a brown silt loam with sand. A maximum sediment depth of 20 cm was determined through limited shovel tests. The site is in a open grasslands with a few piñon and juniper trees.

The site consists of an extremely sparse scatter of flaked-lithic artifacts in an area 76.5 m² in size (Figure 6.11). Most of the artifacts are exposed in a two-track road that bisects the site. Artifacts include nine flakes or flaking debris and a projectile point. The artifacts are manufactured from chert and orthoquartzite. The projectile point is a Late Archaic variety and dates from 1000 BC to A.D. 700 in the Piñon Canyon and Fort Carson areas. This point type is most similar to Category P21 (Lintz and Anderson 1989:136-138). This point type is bi-convex in cross-section with a dull to sharp tip. It possesses unserrated convex blade edges, an expanding stem, a slightly convex base, and weakly barbed shoulders (Figure 6.12). The point measures 35.7 mm long, 27.2 mm wide, and is 8.1 mm thick. Blade length is 28.7 mm. Three shovel tests were excavated at the site

to test sediment depth and potential subsurface deposits. A single flake was recovered from near the surface of one shovel test, while the remaining shovel tests did not recover any artifacts. Activities inferred from this very small artifact assemblage include hunting and possible limited artifact manufacturing.

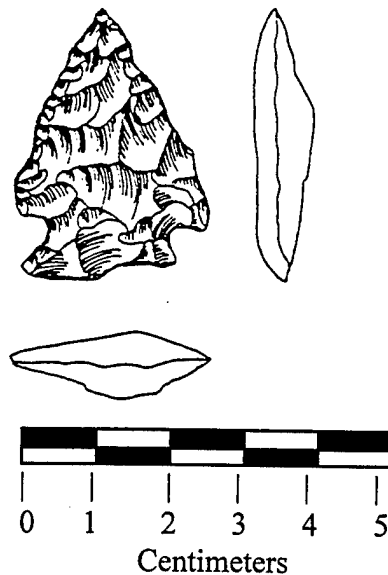


Figure 6.12 Projectile point collected from 5EP2532.

Artifacts are found within the two-track road and outside of the road cut. Shovel tests recovered one artifact from near the surface. This site is essentially a light surface scatter, which has been compromised through

historic vehicular activities. Undisturbed subsurface cultural deposits are unlikely due to intensive historic activity and the shallow sediment depth. The shallow sediments, previous disturbances, and the paucity of artifacts indicate that the site be recommended as not eligible for the NRHP. The site has been mapped and photographed, and the artifacts were analyzed in the field. No further archeological work is recommended at this site.

5EP2533 Site 5EP2533 is a very small flaked-lithic artifact and groundstone scatter located on the east side of a southeasterly extending ridge on the Timber Mountain United States Geological Survey 7.5' quadrangle. The site is on the edge of the ridge near the point where the ridge narrows substantially and at an elevation of 6260 ft (1908 m) asl. The site is on level ground (0 - 1° slope) with an aspect to the east. Sediments consist of a silt loam with gravel. Sediment depth is about 15 cm. The closest water source is an unnamed ephemeral drainage 2.2 km beyond. Vegetation present on the site includes piñon and juniper, yucca, mountain mahogany, grasses, and forbs.

5EP2532

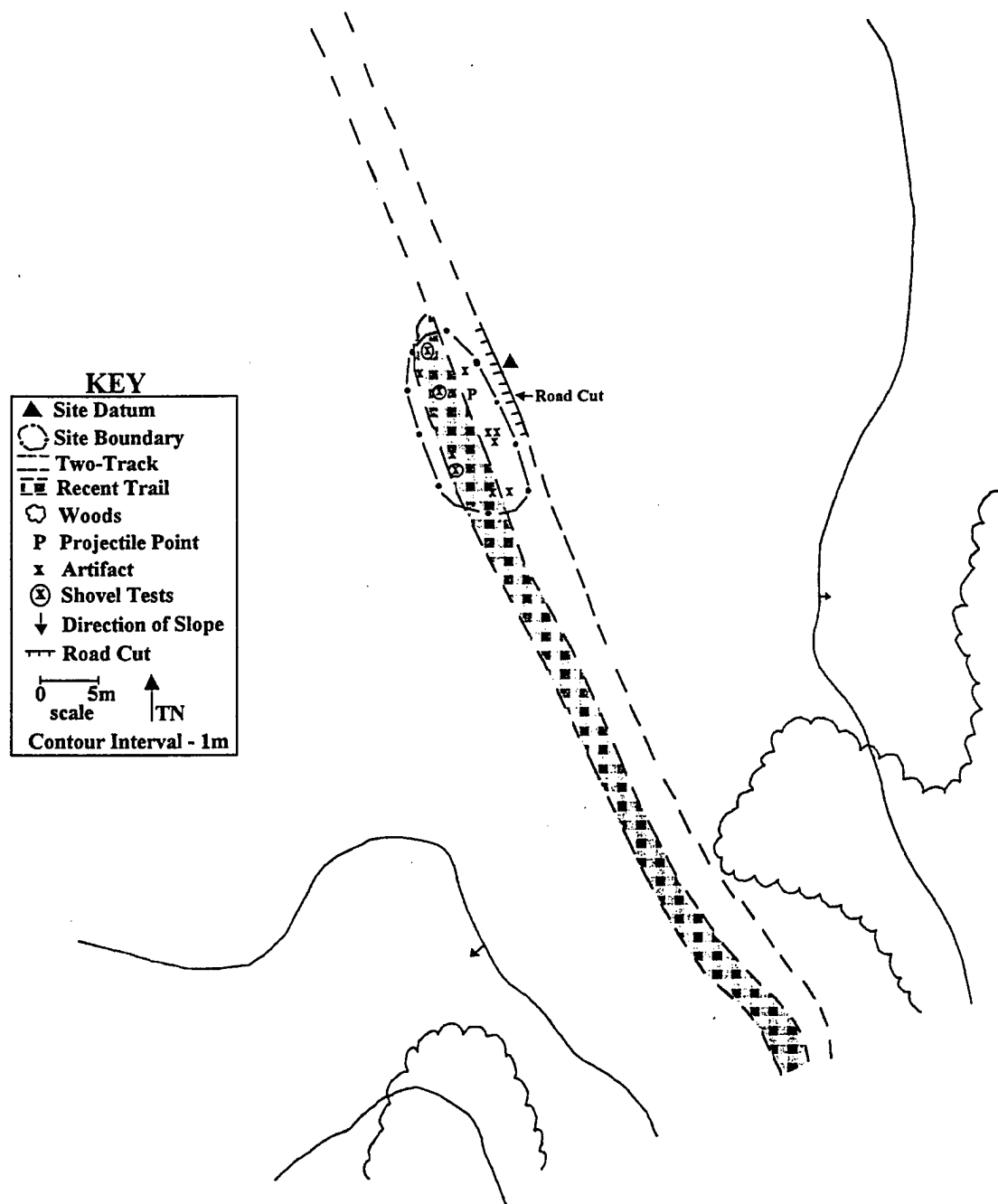


Figure 6.11. Site map, 5EP2532

This small (6 m x 5 m) scatter consists entirely of five pieces of flaked-lithic debitage and one sandstone mano (Figure 6.13). The mano is battered and pecked on all edges and smoothed on one face. The flaked-lithic debitage includes two chert flake fragments, two pieces of flaking debris (one chert, one quartzite), and one silicified wood complete flake. Activities inferred from this small assemblage include tool manufacture and plant or animal processing.

The probability is low that the site possesses significant buried deposits representing either habitation surfaces or features, or a significant yield of artifacts. Therefore, it is recommended that the site is not eligible for nomination to the NRHP. The site has been mapped, recorded, and photographed, and all surface artifacts have been field analyzed. No further archeological work is recommended at this site.

5EP2535 Site 5EP2535 is a stone circle with no associated artifacts (Figure 6.14). The site is located near the south end of a small, southerly extending lobe along the canyon rim at the south side of a flat-topped ridge on the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle). Small intermittent drainages border both sides of the lobe. Elevation of the site is 6240 ft (1901 m) asl. Aspect from the site is to the south with a 1° slope. The gravelly, brown silt loam has a maximum depth of 15 cm. Piñon and juniper, grasses, prickly pear cactus, and mountain mahogany characterize the site's vegetation. Similar vegetation exists along the periphery.

The site is a plausible prehistoric stone circle; however, no artifacts were found in association with the feature. The possibility remains that the stone circle is historic in origin. The stone circle consists of a single course of rock, no longer contiguous, with little sediment accumulation around the rocks. The circle measures 5 m x 5 m with the southeast quarter most intact. Overall, the stone circle appears ephemeral in nature suggesting temporary, perhaps seasonal, use and an unknown cultural origin. Owing to the absence of artifacts and the lack of subsurface archeological deposits, the site is recommended as not eligible for nomination to the NRHP. The site has been mapped and photographed. No further archeological work is recommended.

5EP2539 Site 5EP2539 is a small flaked lithic artifact scatter located on top of a pediment overlooking the plains to the east on the Timber Mountain, United States Geological Survey, 7.5' quadrangle. Site elevation is 5980 ft (1823 m) asl. There is a 2° slope along the pediment with a maximum sediment depth of 15 cm. The sediment matrix consists of a brown silt loam. On-site and surrounding vegetation includes piñon and juniper, mountain mahogany, and short prairie grasses.

The site is a prehistoric flaked-lithic artifact scatter that covers an area 10 m x 5 m in size (Figure 6.15). The flaked-lithic artifacts include one chert uniface, two chert flakes, and two pieces of debris. Terrace gravel and cobbles mantle the pediment, and it is possible the artifacts were manufactured from chert eroding as nodules from the terrace gravel. Tool

5EP2533

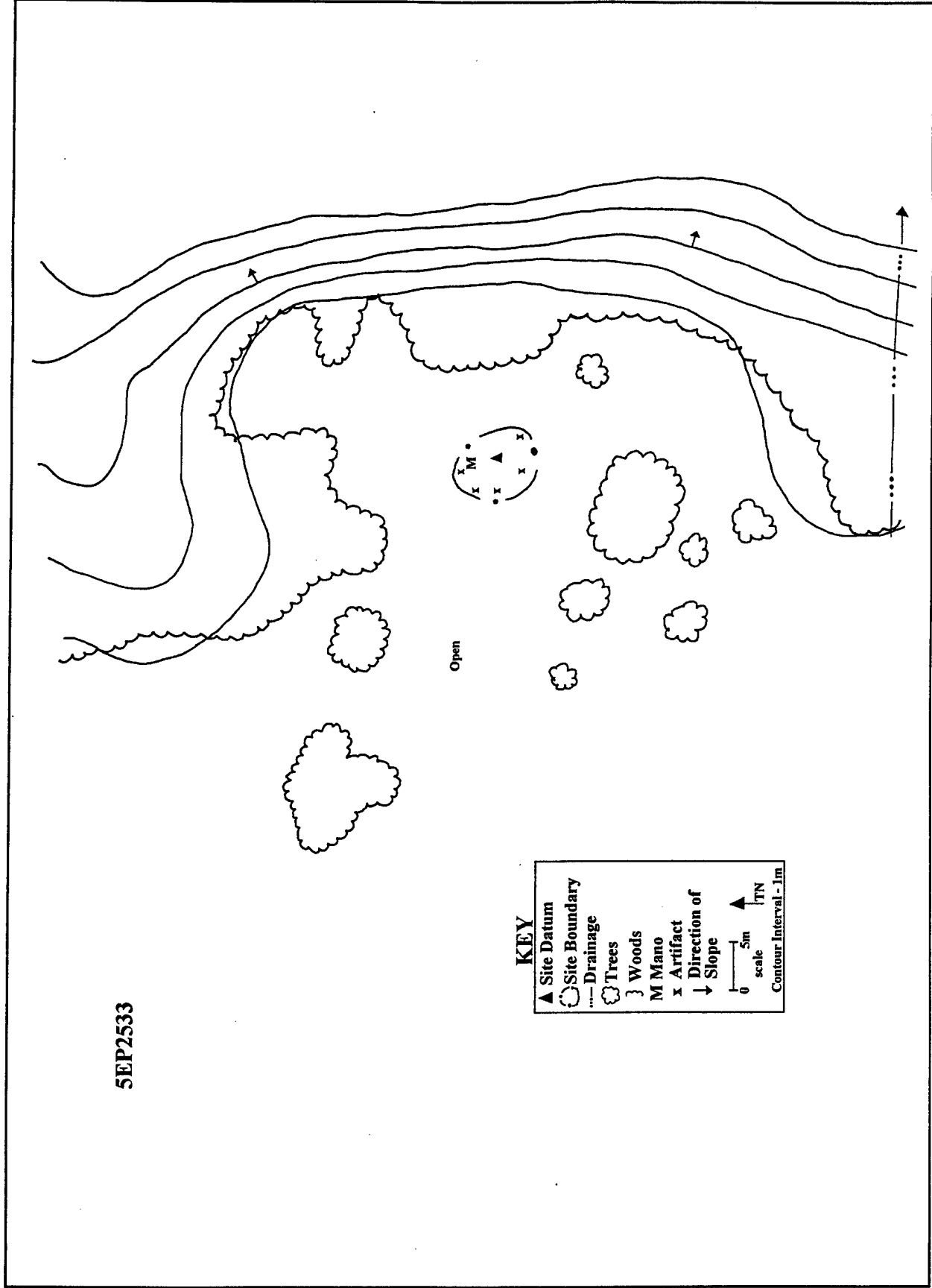


Figure 6.13. Site map, 5EP2532

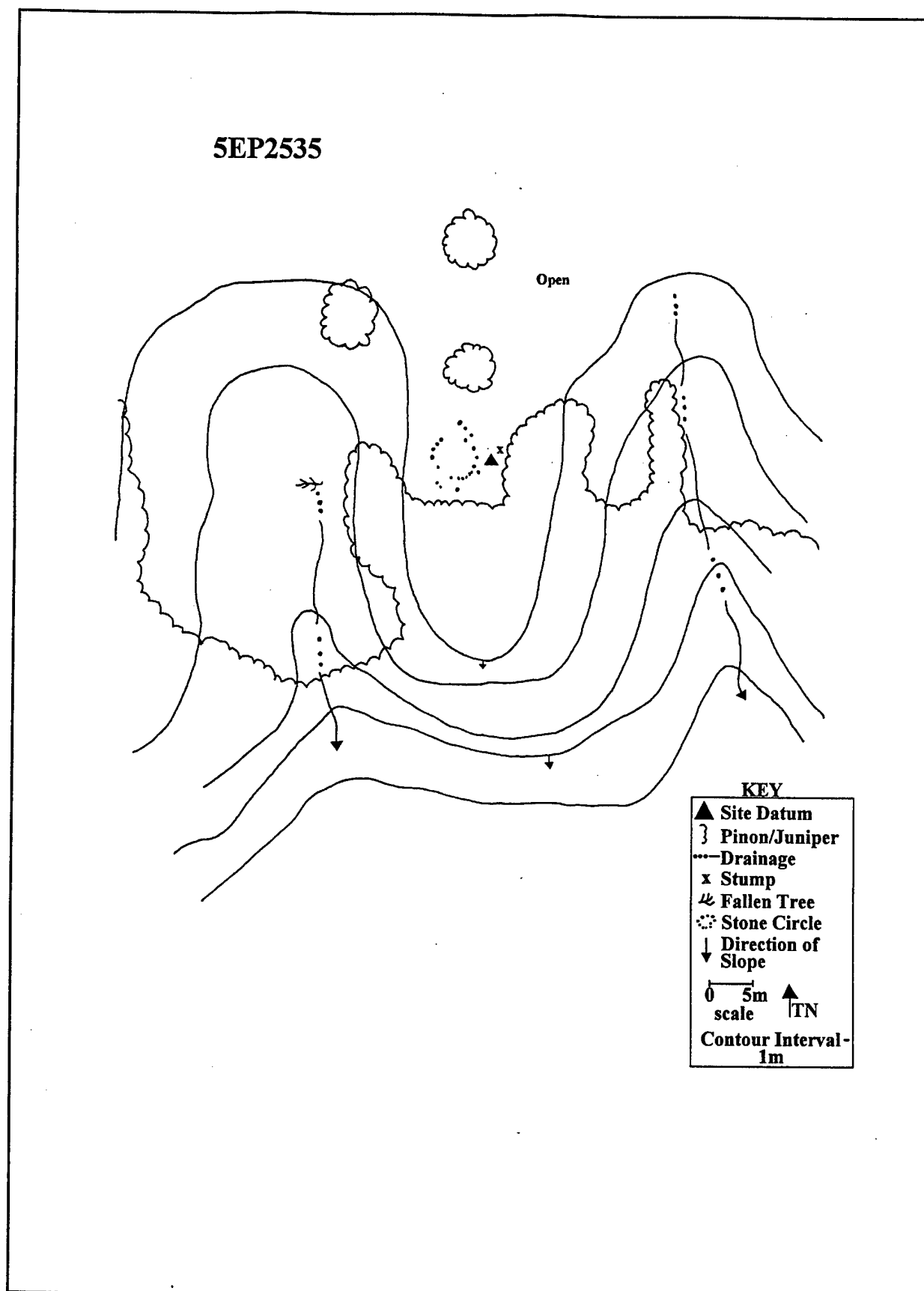


Figure 6.14 Site map, 5EP2535

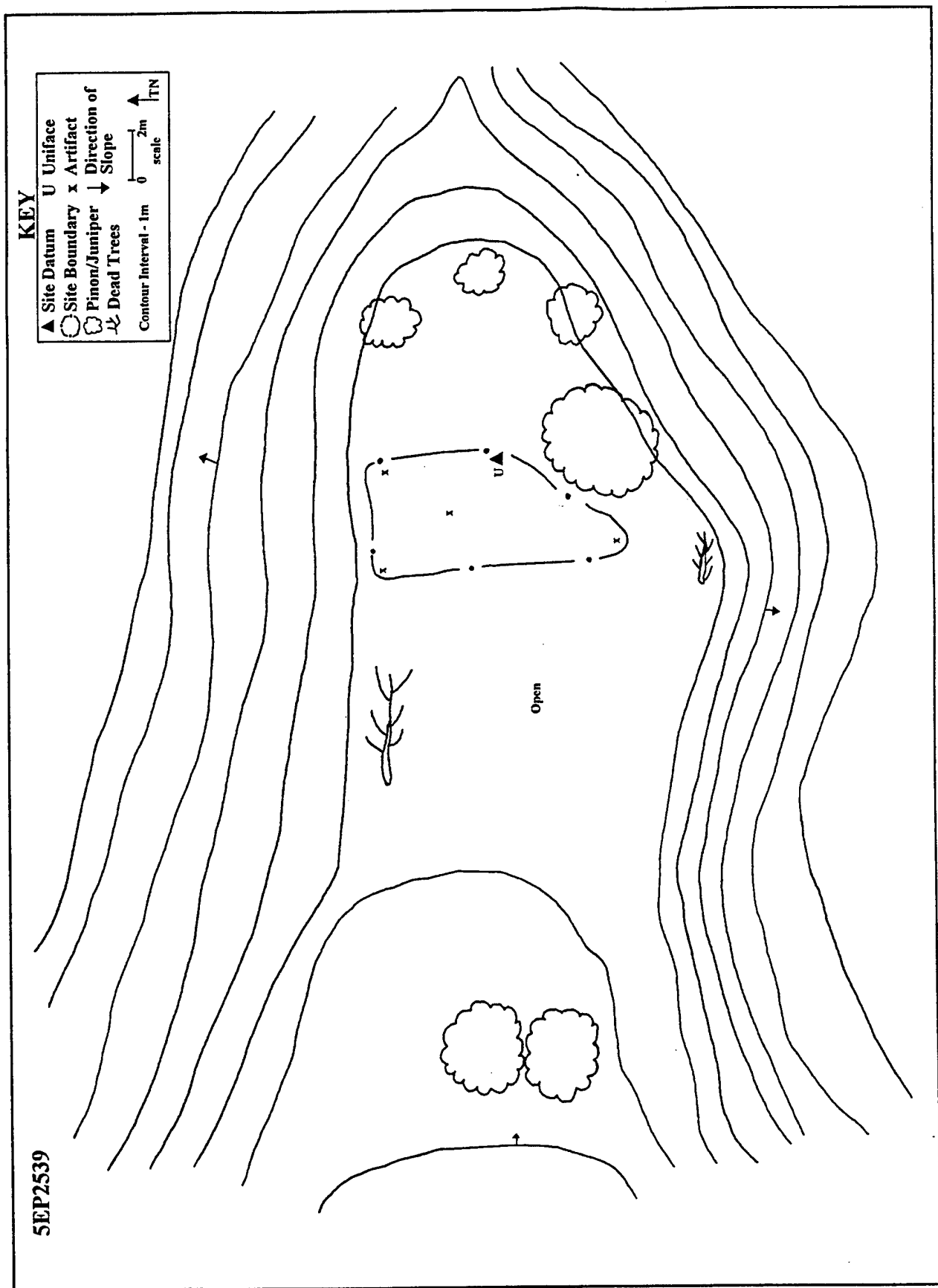


Figure 6.15. Site map, 5EP2539.

manufacture is the inferred activity for the site. The site is recommended as not eligible for nomination to the NRHP due to the paucity of artifacts and the shallow sediment depth, which make buried deposits unlikely. The site was photographed, mapped and recorded, and all surface artifacts were analyzed in the field. No further archeological work is recommended at the site.

5EP2547 Site 5EP2547 is an extremely small flaked-lithic artifact scatter on the dissected southern slopes of an east to west ridge near the western border of the FCMR on the Cheyenne Mountain United States Geological Survey 7.5' quadrangle map. It is at an elevation of 6260 ft (1908 m) asl. The site is in the open with aspect to the south, east, and west. Slope at the site is about 20°, while the surrounding slope is 20° to 30°. Alluvial gravel, which is exposed along the surface of the site, may be the source of the few artifacts observed. Sediment depth is between 0 and 15 cm. The sediments are a light brown gravelly silt loam. The nearest water is an unnamed intermittent drainage 20 m from the site to the east. On-site vegetation includes piñon, juniper, mountain mahogany, and a few sparse grasses and forbs.

The site consists of an extremely small (78 m²) and light scatter of flaked-lithic artifacts along an eroded slope (Figure 6.16). Artifacts include a smoky quartz biface, a quartzite unidirectional core, and a quartzite flake fragment. A military two-track road bisects the site. A recent hearth feature is located just north of the site as well. The scatter is too small to imply prehistoric activities.

This site is essentially a light surface scatter, which has been compromised through historic vehicular activities. Undisturbed subsurface cultural deposits are unlikely due to intensive historic activity and the shallow sediment depth at the site. The shallow sediments, previous disturbances and the paucity of artifacts indicate that the site be recommended as not eligible for the NRHP. The site has been mapped and recorded, photographed, and all artifacts have been field analyzed. No further archeological work is recommended at this site.

5EP2548 Site 5EP2548 consists of two historic check dams. They are located along a south-facing terrace slope overlooking Deadman Canyon on the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle. Site elevation is 6190 ft (1887 m) asl. Aspect is to the south with a 10° slope. On-site vegetation includes piñon and juniper, mountain mahogany, and Gambel oak. Sediment matrix is a silt loam.

The site represents historic efforts to control erosion in the small erosion gullies radiating from the terrace above. The lower check dam is four courses high and measures 2.5 m x 3 m (Figure 6.17). The stones range in length from 20 cm wide to 100 cm. The lower dam is 15 m from the edge of the terrace. The upper check dam measures 1.5 m x 3 m and is constructed of a single course of smaller rocks between two boulders. Total site dimensions are 17.5 m x 2.5 m. The upslope sides of the dams are completely silted in and have effectively controlled erosion. Both dams control southwesterly flowing gullies.

5EP2547

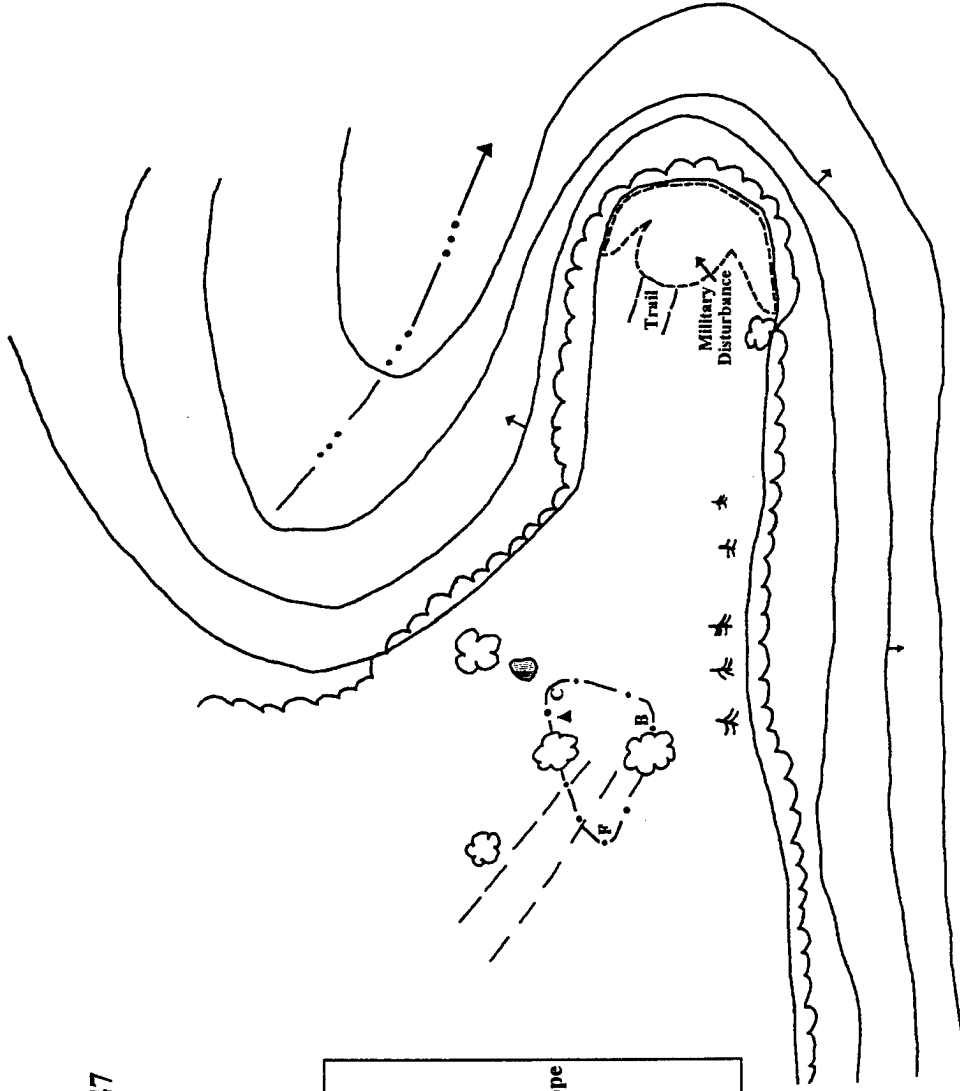
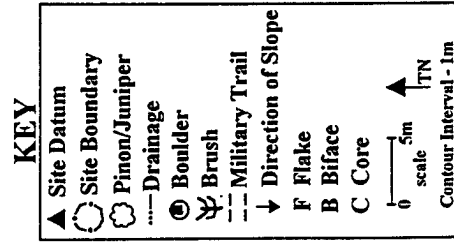


Figure 6.16. Site map, 5EP2547.

5EP2548

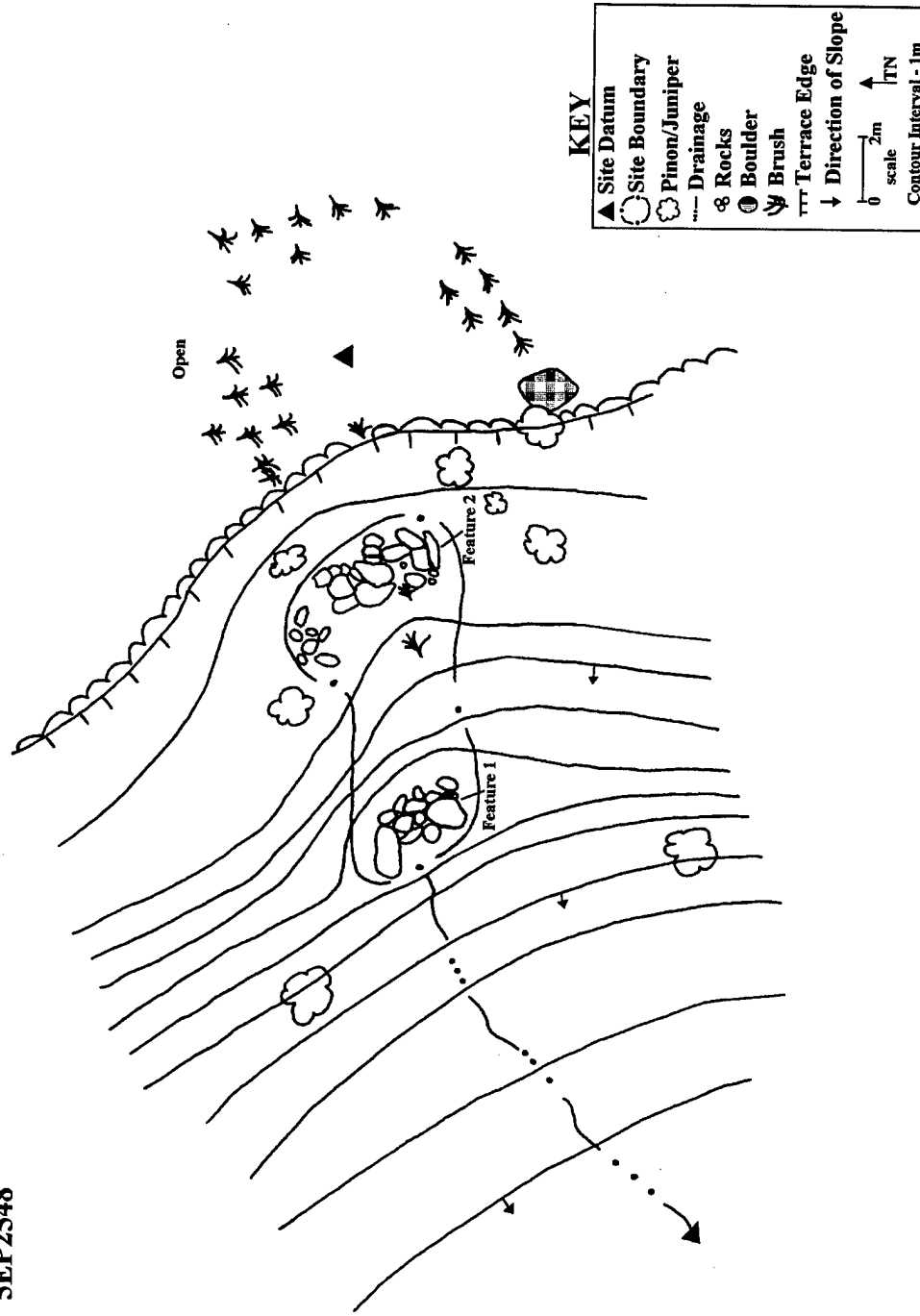


Figure 6.17. Site map, 5EP2548.

The site is not recommended for nomination to the NRHP. No artifacts were found associated with this historic-period site, and the information potential of the site has been exhausted through maps, records, and photographs. No further archeological work is recommended at this site.

5EP2550 Site 5EP2550 is a historic alignment of boulders. It is located on top and along the edge of a Pleistocene terrace on the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle. The terrace is at the confluence of Little Fountain Creek and Deadman's Canyon. Site elevation is 6190 ft (1887 m) asl and slope is 2° slope. Sediment matrix is a gravelly silt loam. On-site and surrounding vegetation consists of piñon and juniper, with an abundance of grasses and yucca.

The site measures 97 m x 29 m (Figure 6.18) and consists of two lines of Pleistocene boulders, presumably delineating an enclosure (fence line) or serving as a boundary marker. The first line is roughly parallel to the east side of the terrace and is approximately 97 m long. The second line extends 29 m to the east-northeast from the north end of the first line forming an upside down L-shape. The L-shape forms an enclosure with the steep terrace edge forming the remaining side. The alignment is generally formed by a single course of boulders and is interrupted in places by intentionally placed spaces measuring 5 to 6 m in length. These open spaces may represent gate openings.

The alignment appears fairly old (late 1800s to early 1900s) because many of the rock are silted in with fairly thick vegetation growing among the interstices. Similar boulder features are present at site 5EP2524 across the creek to the southwest. Ceramics and bottle-glass fragments were found adjacent to one such alignment on 5EP2524. The solarized glass fragments are pre-World War I, and the dark olive-green glass may date to near the turn of the century. The similarity of the two alignments suggests that site 5EP2550 may date to the same general time period.

A records search was conducted at the BLM office in Canon City, the County Assessor's Office in Colorado Springs, and at the Fort Lewis College Library. Also, the catalog of historic land entries in the HPP (Zier et al. 1987: Appendix E) was consulted. This catalog of entries shows three landowners for this specific area: Eliza G. Wonack (1891), Adam Dingels (1890) and Emory Low (1884). Interestingly, the boulder alignment is located near the quarter quarter section line between two property holders: Emory Low and Eliza G. Wonack (probably misspelled and should be Womack) or Adam Dingels who appear, from these records, to have patented the same 40 acres. In the 1889 Hayden survey of Colorado (Hayden 1889:83), a ranch is located in the exact location of 5EP2550, which is along the terrace west of the confluence of Little Fountain Creek and Deadman's Canyon. The name of the ranch on this map is the Sun View Ranch. This ranch belonged to Robert (Bob) Womack (Cripple Creek Gold Strike in 1890) and served as a sub-post office for the Canon City to Colorado Springs mail route (Whittemore 1967:55). Whittemore (1967:55) adds "... one [sub-post office] was at Sun View, the home of Bob Womack on the Little

5EP2550

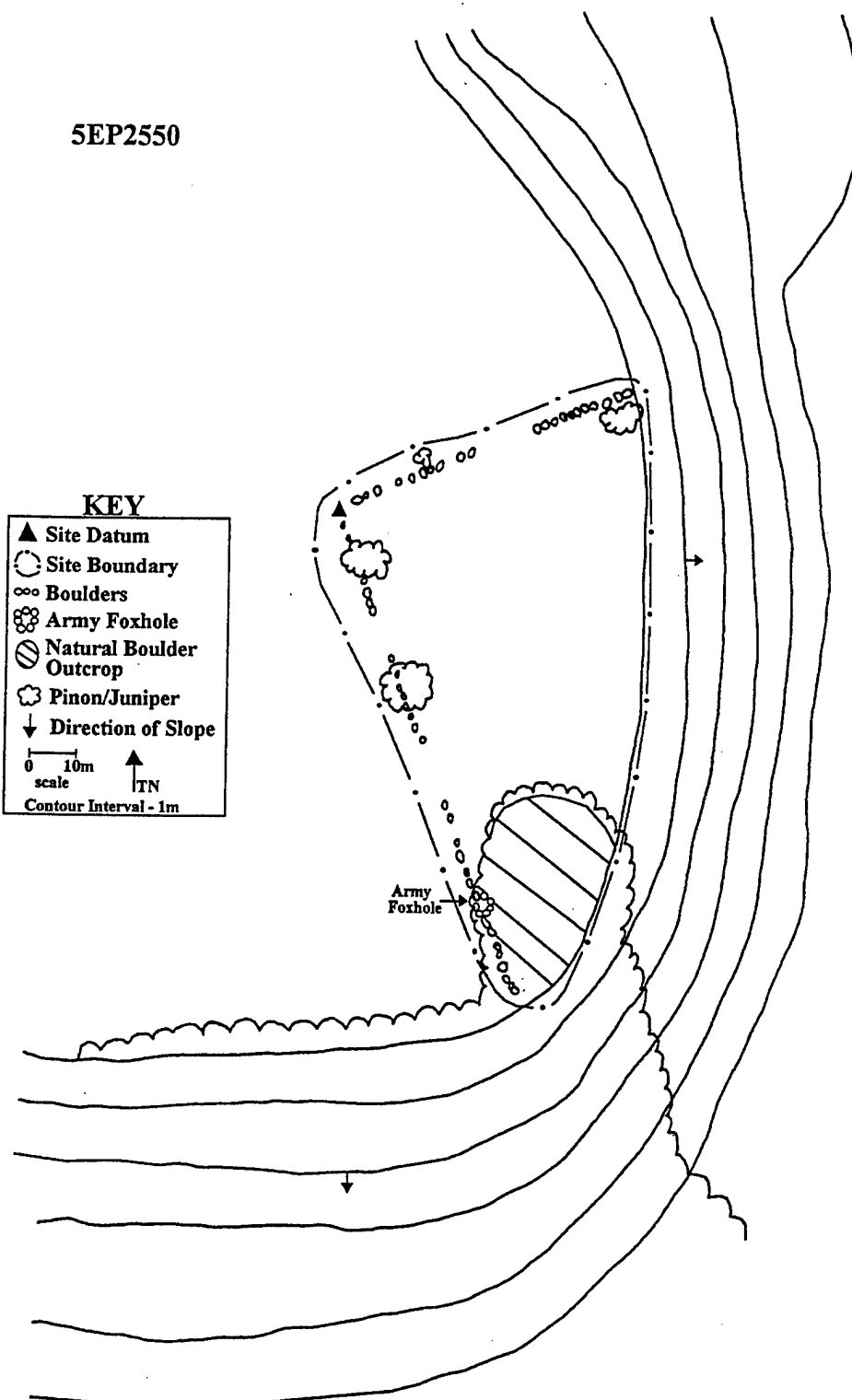
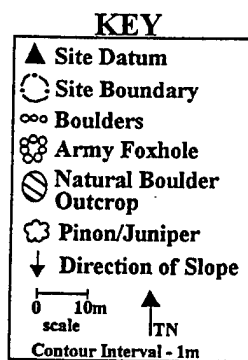


Figure 6.18 Site map, 5EP2550

Fountain, and the other at the John Lytle homestead on Turkey Creek." However Zier et al. (1967:2-132) give the location of the Sun View Ranch as Sec. 1, Township 16S, Range 67W. This is curious because Little Fountain Creek skirts the southern edge of Section 1 and never fully enters this section. The exact location of the Sun View Ranch, therefore, remains inconclusive. The Hayden survey (Hayden 1889:83) shows a road along the creek bottom just below the Sun View Ranch. The road enters from Deadman Canyon and continues to the southeast after Deadman Canyon and Little Fountain Creek merge just east of the location of Sun View Ranch.

A thorough examination of the area around the boulder alignment was made to determine if artifacts or other features were present at the site. None was located, and the closest site is 5EP2548 (200 m southwest), which consists of two check dams. 5EP2550 is recommended as not eligible for nomination to the NRHP. The research potential of this site has been exhausted through records, maps, and photographs. No further archeological work is recommended at the site.

5EP2551 Site 5EP2551 is a historic alignment, (transportation route) and a historic artifact scatter that represents a single dump episode. The site is situated on a Pleistocene terrace (T3) 100 m above an unnamed intermittent drainage on the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle. Little Fountain Creek, the nearest permanent water source, is 680 m to the south. Site elevation is 6190 ft (1887 m) asl. Aspect of the site is open with an indistinguishable 2° slope. Maximum sediment depth is 50 cm and is characterized by a bouldery silt loam. Prairie grasses, yucca, forbs, and an occasional juniper dominate the site and surrounding area.

The site is a linear feature (Figure 6.19) with an associated historic artifact scatter, representative of a single-episode trash dump. The alignment was constructed through excavation and resembles a road or trail, but the possibility exists that it functioned as a ditch. The bottom of the alignment is generally flat but does slope to form a "V" shape in some places. The alignment varies between 9 and 15 ft wide, is as much as 6 ft below the ground surface, and was observed for a distance of 2700 ft. The alignment quickly dissipates to the south of a modern military road, but continues for 2500 ft to the north and 200 feet to the west, where it disappears in the hummocky terrain. The historic artifact scatter measures 18 feet by 5 feet along the south slope of the alignment. A total of twenty-one pieces of glass, two pieces of ceramic whiteware, one piece of blueware, and a fragment of a canning jar, bottle glass and window glass were observed. One piece of solarized glass, six pieces of brown glass, and four pieces of light green bottle glass were noted as well. Solarized glass and fiesta blueware suggest a pre-World War I to 1940s date.

Feature integrity is good; however, military activity has obscured the alignment in places causing it to discontinue. It is possible that this alignment represents the historic Old Colorado Springs and Canon City road believed to be in the vicinity (Scott 1975). A records

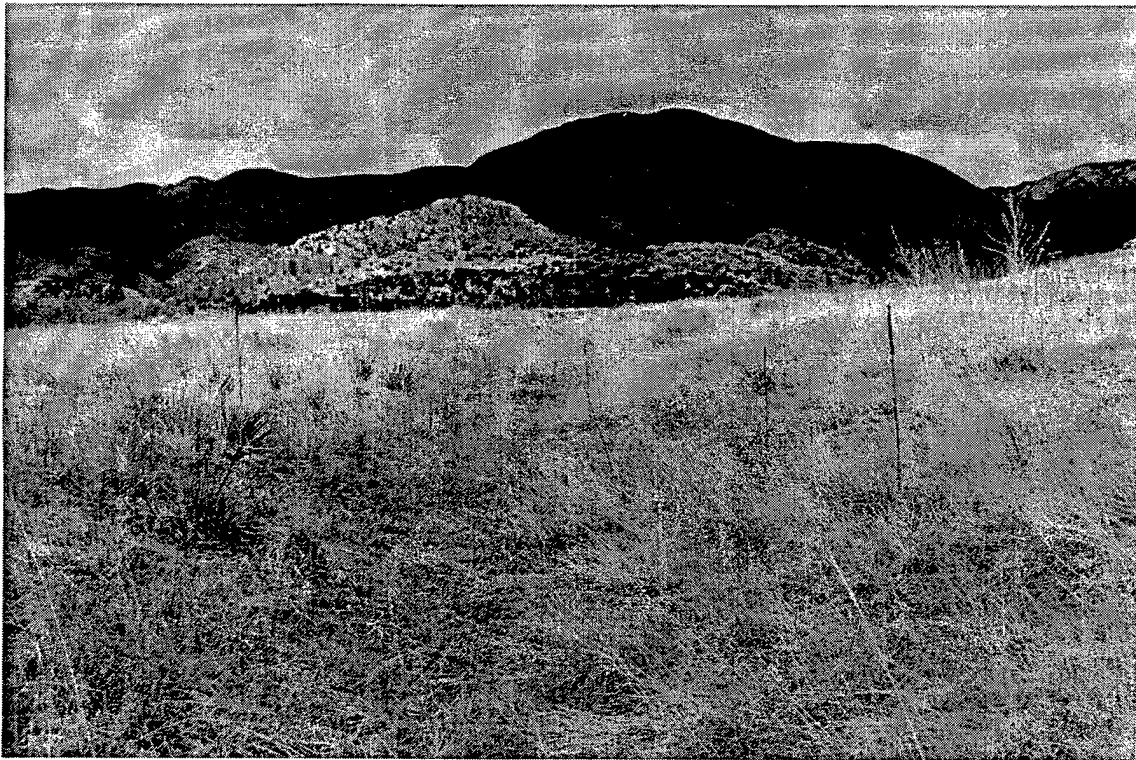


Figure 6.19 Photograph of 5EP2551. View is to the north-northwest.

search was conducted at the BLM office in Canon City, the County Accessors Office in Colorado Springs, and Fort Lewis College library. Notes (Hildebrand 1996) were obtained from the BLM office in Canon City on a survey conducted in 1872. The surveyors briefly mention the presence of a road between Sections 11 and 12. The specific location of the road within the interior of Section 12; however, was not included in these cursory notes. The 1889 Hayden Survey (Hayden 1889:83) shows a road entering Section 12 through Deadman Canyon and continuing southeast along the creek before ascending the terrace to the north. However, this road is not in the location of site 5EP2551. No additional structures or features were observed in association with 5EP2551. This site is recommended as not eligible for nomination to the NRHP. The research potential of the site is limited due to lack of associated artifacts or features. The site has been mapped, recorded, photographed, and the surface artifact scatter was analyzed in the field. No further archeological work is recommended at this site.

Reevaluated Sites

Immediately after fieldwork had commenced on the scheduled inventory and testing, the scope of work was amended by the Army to include the inventory of a proposed ground-assault range (Range 127) in the Timber Mountain, United States Geological Survey 7.5' quadrangle (Figure 1.2, Figure 1.3 and Figure 1.4). A small portion of the proposed assault range within the Turkey Creek drainage and on the unnamed mesa southeast of Turkey Creek had been previously inventoried (Alexander 1982), and six archeological sites had been identified as eligible for nomination to the NRHP (Alexander 1982). At the request of DECAM personnel, Fort Lewis College relocated and reevaluated the six resources for NRHP eligibility status to complete the inventory for the proposed assault range.

The relocation and reevaluation of six previously recorded sites in the proposed assault range presented us with some unusual challenges. Primary among these was the fact that the sites were recorded over 15 years ago. The ground surface of the sites has changed over the years to such an extent that in the majority of cases the site maps could not be refitted to the ground surface identified as the site location on the topographic maps. Of the six previously recorded sites, two sites (5EP49, 5EP84?) could not confidently be relocated due to either incomplete site information (5EP84?) or simply because we were unable to match the information on the original site form to the location identified on the United States Geological Survey topographic quadrangle map (Timber Mountain) supplied by Fort Carson. Four sites, 5EP46, 5EP48, 5EP163, and 5EP165 were relocated and reevaluated.

5EP46 Site 5EP46 was originally recorded as three clusters of tool sharpening grooves on the vertical faces of a south-facing rock shelter (Alexander et al. 1982:69). The vertical faces of the shelter were reported to have been heavily vandalized with carved initials and dates (Alexander et al. 1982:70).

The site is located correctly on the topographic map; however, the site map is not fully correct. The sheltered area is basically correct, but the part labeled "elevated rock - natural passage with minimal protection ("chimney") is out-of-proportion, as is the rest of the rock formation. There are seven additional grooves on the east-facing right side of the arch before entering the overhang that were not recorded on the original site documentation. Also the historic vandalism, as it was referred to, was rerecorded as historic graffiti. 5EP46 remains in good context, and it is recommended that this alcove shelter with sharpening grooves and historic graffiti be considered eligible for nomination to the NRHP, and that it be protected from ground-disturbing activities.

5EP48 Site 5EP48, as originally recorded, consisted of a sparse to moderately dense flaked and ground stone scatter along the eastern edge of a high mesa overlooking the plains to the east. Among the total sixty-nine surface artifacts in a site area of 1500 m² (Alexander et al. 1982:70) were one corner-notched projectile point, one projectile point tip, one

groundstone fragment, and one drill fragment. The projectile point was typed as probable Late Archaic.

The site was located correctly on the United States Geological Survey 7.5' topographic map. The site map matched the ground surface fairly well and several flaked-lithic artifacts were observed in the area of the site. However, extensive damage from military activities and enhanced surface erosion was noted at the time of the site reevaluation. It was determined that there is little potential for additional information at this site. It is recommended that the site is not eligible for nomination to the NRHP. No further archeological work is recommended at this site.

5EP163 Site 5EP163 was recorded as a moderately dense ground and flaked-lithic artifact scatter located on an alluvial terrace east of Turkey Creek. A total of 247 artifacts were noted and 75 of these were collected (Alexander et al. 1982:77) at the time of survey. These artifacts included several bifaces, a ceramic, two corner-notched projectile points, and two groundstone fragments. The points were typed as Late Archaic - Plains Woodland. It was noted at the that time that the site was moderately disturbed by tracked vehicles.

The site was difficult to accurately identify due to the physical changes to the site since the original recording. The site has been compromised through slope wash erosion, gully erosion, and mechanized traffic. Eighteen shovel tests were placed within the artifact scatter. Although three of the shovel tests produced artifacts—flaked lithic artifacts, a projectile point and one cord-impressed ceramic—the depth of these artifacts is slightly below the ground surface. The projectile point is a small, expanding stem type (Figure 6.20). This projectile point type fits well with Category P58

described in Lintz and Anderson (1989:184-187). The point has convex blade edges and a sharp to very sharp tip. It is corner-notched with a slightly convex base. This point measures 21.3 mm long, 13.2 mm wide, and is 3 mm thick. It dates from A.D. 400 - A.D. 1400 (Lintz and Anderson 1989:187). The shallow site context and amount of surface impact suggests that the site does not possess the potential to yield significant data. Therefore, the site is not recommended as eligible for nomination to the NRHP. No further archeological work is recommended at this site.

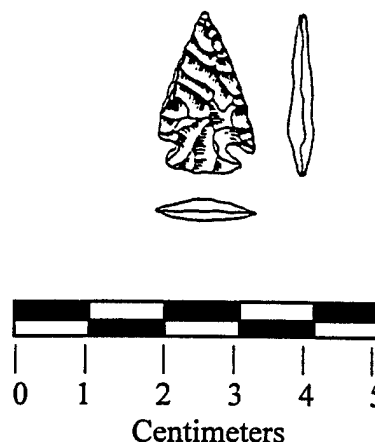


Figure 6.20 Projectile point collected from 5EP163.

5EP165 Site 5EP165 was recorded as a flaked-lithic artifact and ceramic scatter on a low alluvial terrace east of Turkey Creek. The site area was recorded as 1500 m². Four projectile points and plain and cord-marked ceramics were recorded and collected at that time. These diagnostic artifacts suggested to the archeologists possible Late Archaic, Plains Woodland, and Late Prehistoric occupations (Alexander et al. 1982:78). The authors note that significant damage had occurred to the site as a result of military activities.

The area identified on the United States Geological Survey, 7.5' quadrangle map as the location of 5EP165 was heavily vegetated. Because it was difficult to accurately locate the site from the presence of surface artifacts, ten shovel tests were excavated along the edge of the low alluvial terrace. Three of the ten shovel tests produced artifacts to a depth of 30 cm below the surface. These artifacts included cord-marked ceramics, flaked-lithic artifacts and fire-cracked rock. Charcoal was also noted in at least two of the tests. The site has the potential to yield significant information about the settlement and occupation of the Plains Woodland Period in the FCMR. The site is therefore eligible for nomination to the NRHP.

Conclusion

Two of the four sites relocated, 5EP46 and 5EP165, are recommended as eligible for nomination to the NRHP. Sites 5EP48 and 5EP163 were relocated, but do not appear to contain the potential for significant buried deposits. The map location for site 5EP84? showed no surface indications of an archeological resource having ever been in this location. Records indicate the site never existed. There is no site form either at DECAM or at the State SHPO office, and there is no discussion of any kind in Alexander et al. (1982). It is recommended that this site does not contain the potential to yield significant information, and is not eligible for nomination to the NRHP.

CHAPTER 7

EVALUATIVE TESTING RESULTS, 5EP2524

Introduction

Evaluative testing was conducted by Fort Lewis College at site 5EP2524. The purpose of the testing was to determine the site's potential for nomination to the National Register of Historic Places (NRHP). The site was first identified by army archeologists as a light scatter of flaked-lithic artifacts interspersed among several enigmatic boulder features. Because the site had not been officially recorded, the first objective was to complete the appropriate State of Colorado site forms. Subsequent work included theodolite mapping of surface artifacts, detailed feature documentation, shovel testing, and the excavation of seventeen test units. The primary goal of test excavation at 5EP2524 was to establish the cultural origin and function of the boulder features, and to determine the potential for buried archeological deposits. Twenty-one boulder features are documented at this site. These twenty-one features consist of three general morphological types: linear, circular, and u-shaped. Two of the features are determined to be of historic origin, while all but one of the remaining nineteen features are determined to be of recent military origin. The origin of the remaining feature is inconclusive, based on its archeological context. The site did not appear to be eligible for nomination to the NRHP based on the features; however, a buried prehistoric component, which is unrelated to the features, demonstrates that the site has yielded significant information about the prehistory of the FCMR. Therefore, the site is eligible for nomination to the NRHP. This recommendation is based on field and laboratory analysis.

Site Description

Site 5EP2524 consists of an expansive (20,000 m²) scatter of historic and prehistoric artifacts interspersed among twenty-one boulder features. The site is situated along the edge of a high (T2) Pleistocene terrace (Figure 7.1) on the north side of Little Fountain Creek on the Cheyenne Mountain, United States Geological Survey, 7.5' quadrangle, at an elevation of 6140 ft (1871 m) asl. The confluence of Little Fountain Creek and Deadman Canyon is 100 m southwest of the site. Little Fountain Creek provides the nearest (60 m) permanent source of water. The tread of the terrace has a slight slope (2°) while the riser has a slope of 15°. Igneous and sandstone cobbles and boulders are exposed over the entire site. The soils are generally a sandy loam with some eolian and alluvial silt. The soil is a product of alluviation and weathering of the parent material, which is mainly granitic. Sediment depth

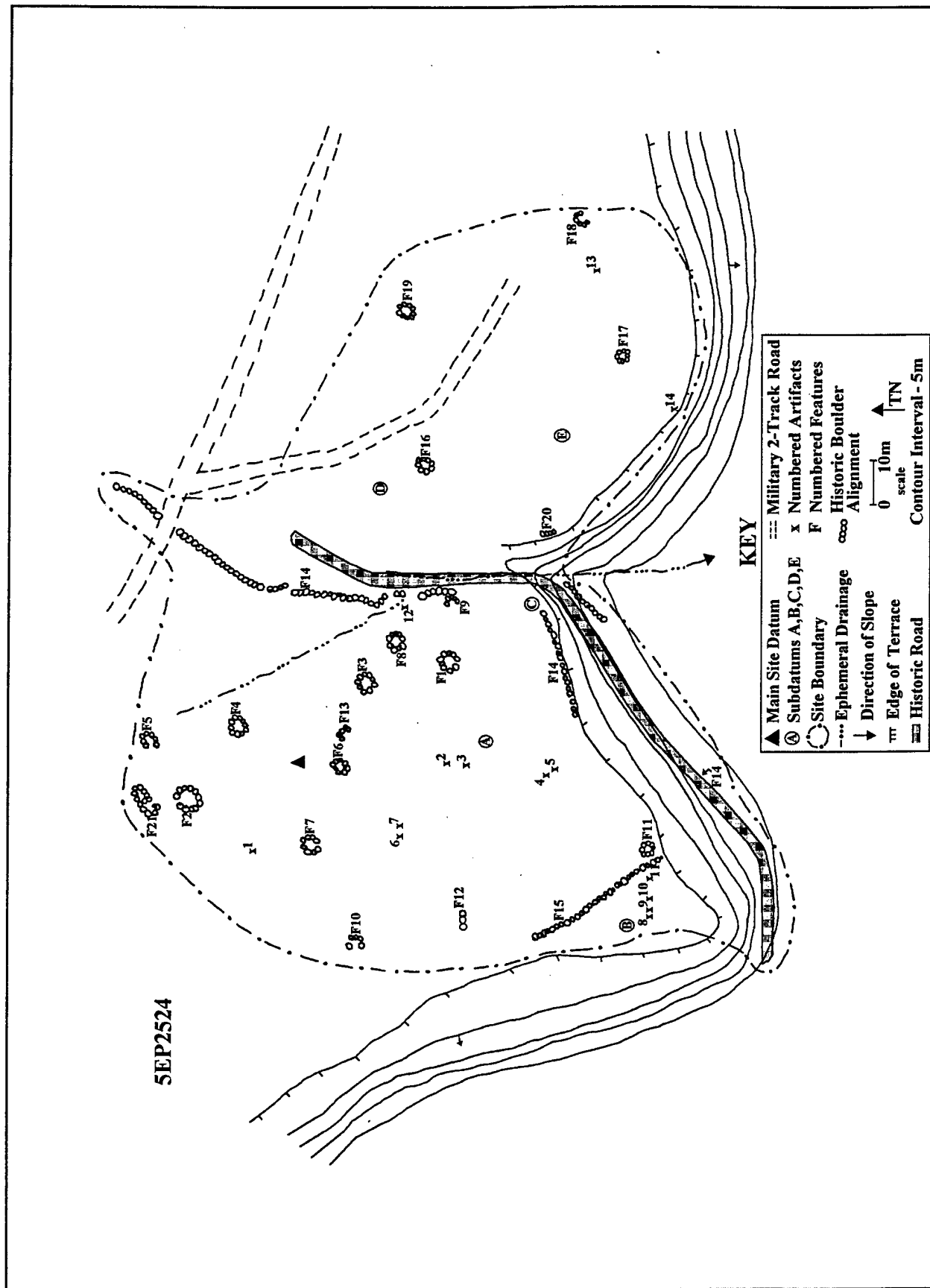


Figure 7.1 Site map, 5EP2524

varies across the site. The terrace consists of weathered gravels on a cut surface 100 ft (30 m) above the modern stream. Sediments are moderately reddish brown, poorly sorted, moderately compacted, stratified gravel containing layers of clay, silt and sand, and clay balls derived from shaley bedrock. The upper part of most deposits, where they have not been eroded, contains abundant calcium carbonate. Thickness of the deposit may be as much as 40 ft. Permeability is high in the gravel, but generally low in the clayey and silty layers. Excavation is generally easy except in the bouldery deposits. This deposit is a source of sand, gravel, and boulders, and it is associated with the Sangamon interglaciation or the Illinois glaciation. Vegetation on the site consists of deciduous trees (Gambel oak) and shrubs (hop tree, sagebrush, mountain mahogany, skunkbrush), evergreens such as piñon and juniper, grasses (grama), and succulents. The shrubs and trees are concentrated along the hummocky boulder outcrops, while the lower areas are dominated by grasses, wildflowers, mullein, prickly-pear cactus, cholla, yucca, shrubs, and forbs. Several environmental zones are represented in the vicinity. Vegetation along the terrace edge is transitional between woodlands and grasslands. North of the terrace edge is open grassland, whereas Little Fountain Creek, a short distance from the site, supports riparian vegetation such as cottonwoods and willows.

The prehistoric component consists of a diffuse scatter of flaked-lithic artifacts. One chalcedony beveled scraper, five utilized chert flakes, and eight pieces of nontool flaked-lithic debitage were recorded on the surface. The debitage includes five pieces of chert debris, two chert flake fragments, and one broken orthoquartzite flake. The historic component consists of a historic road and two boulder alignments. One alignment is a stacked-stone wall that parallels the historic road. Another boulder alignment is at the western margin of the site. This alignment is associated with a light scatter of historic glass and ceramics. The scatter contains approximately eighty pieces of glass representing fragments of at least three bottles: solarized, dark green, and clear glass. A solarized bottle top with a patent-lip finish was collected. Four pieces of the dark-green glass appear to have been intentionally altered by flaking one edge for use as a cutting or scraping tool. The solarized glass is pre-WWI in age. Dark-green glass is this old as well and may date as early as the later part of the 19th century. Approximately twenty pieces of white earthenware consistent with fragments of a single plate or cup, complete the historic artifact assemblage.

Results of Eligibility Testing

Mapping and Surface Reconnaissance

Initial site assessment began by conducting pedestrian transects across the site using the terrace edge as a transect boundary. All observed artifacts were pin flagged and field analyzed. Fourteen prehistoric artifacts were identified on the surface and an estimated one hundred historic artifacts were identified. The historic artifacts are primarily found in a cluster associated with Feature 15, a boulder alignment. One chalcedony scraper, one

solarized bottle top, and four pieces of altered dark-green glass were the only artifacts collected from the surface.

An 18" long piece of rebar was placed near the north edge of the site. This datum served as the main site datum. Five subdatums were needed to fully map the site. Coordinates for the site map (Figure 7.2; Figure 7.3) were collected using a Nikon Theodolite and metric stadia rod. True North was established by shooting a true north reference position along the horizon from the main datum. This position was established with a Brunton Compass corrected to 11° (easterly declination). This reference position was marked with flagging tape. The theodolite was zeroed to the reference position. The subdatums were all shot in with the theodolite and back shots were taken to establish their azimuth position. Theodolite shots were recorded as azimuth readings from True North. The distance to any position was taped if it was on level ground and with minimal interference from vegetation. Otherwise, distance was established from the difference between the upper and lower rod readings when the slope angle was between +5° and -5° (horizontal distance). When the angle of slope was greater than 5 degrees, distance was determined by first calculating the slope distance and then the horizontal distance by the following equation:

$$\begin{aligned}\text{SD (slope distance)} &= \text{upper rod reading} - \text{lower rod reading} \\ \text{HD (horizontal distance)} &= (\cosine \angle)^2 \times (\text{SD})\end{aligned}$$

Elevations were calculated from the difference between the middle rod reading and the height of the instrument when the angle of slope was between +5° and -5°.

$$\text{Elevation} = \text{IH (instrument height)} - \text{middle rod reading}$$

If the slope angle exceeded 5°, the elevation was determined by the following equations:

Calculation of elevation shot at a positive angle (+ \angle):

$$\begin{aligned}\text{IE (instrument elevation)} &= \text{IH} + \text{ground elevation (arbitrary 100m)} \\ \text{Mapping point elevation} &= \text{IE} + (\sin \angle \times \text{SD}) - \text{middle rod reading}\end{aligned}$$

Calculation of elevation shot at a negative (- \angle):

$$\begin{aligned}\text{IE (instrument elevation)} &= \text{IH} + \text{ground elevation (arbitrary 100m)} \\ \text{Mapping pint elevation} &= \text{IE} + (\sin - \angle \times \text{SD}) - \text{middle rod reading}\end{aligned}$$

In the lab, the polar (azimuth) reading were converted to rectangular coordinates for ease of plotting. Mapping points were plotted along with their elevations in reference to the Main Datum (100 m), and then the map was hand-drafted. All artifacts, features, shovel tests, test units, and numerous topographic points were mapped with the theodolite and stadia rod.

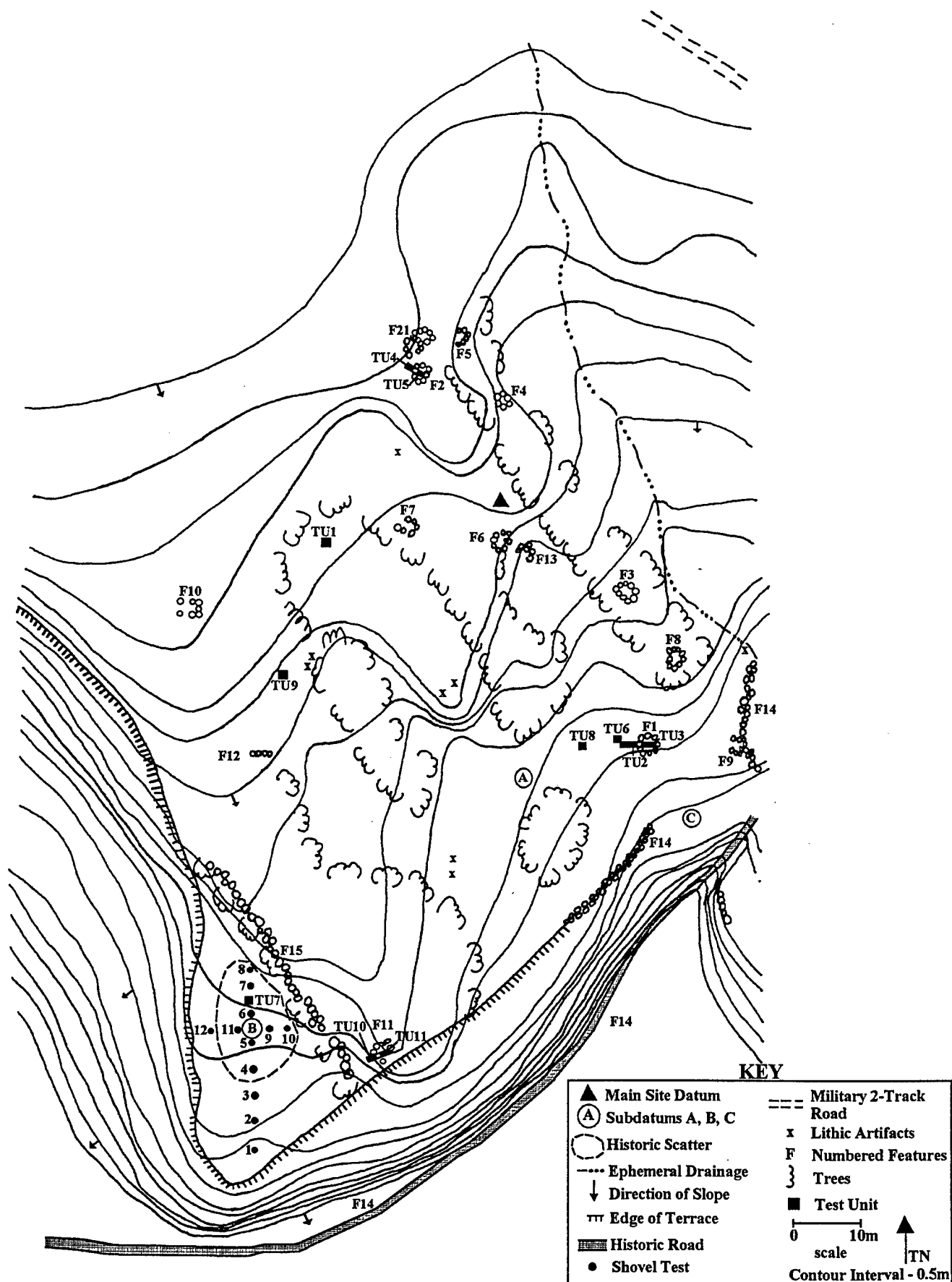


Figure 7.2 Area A, western portion of site 5EP2524

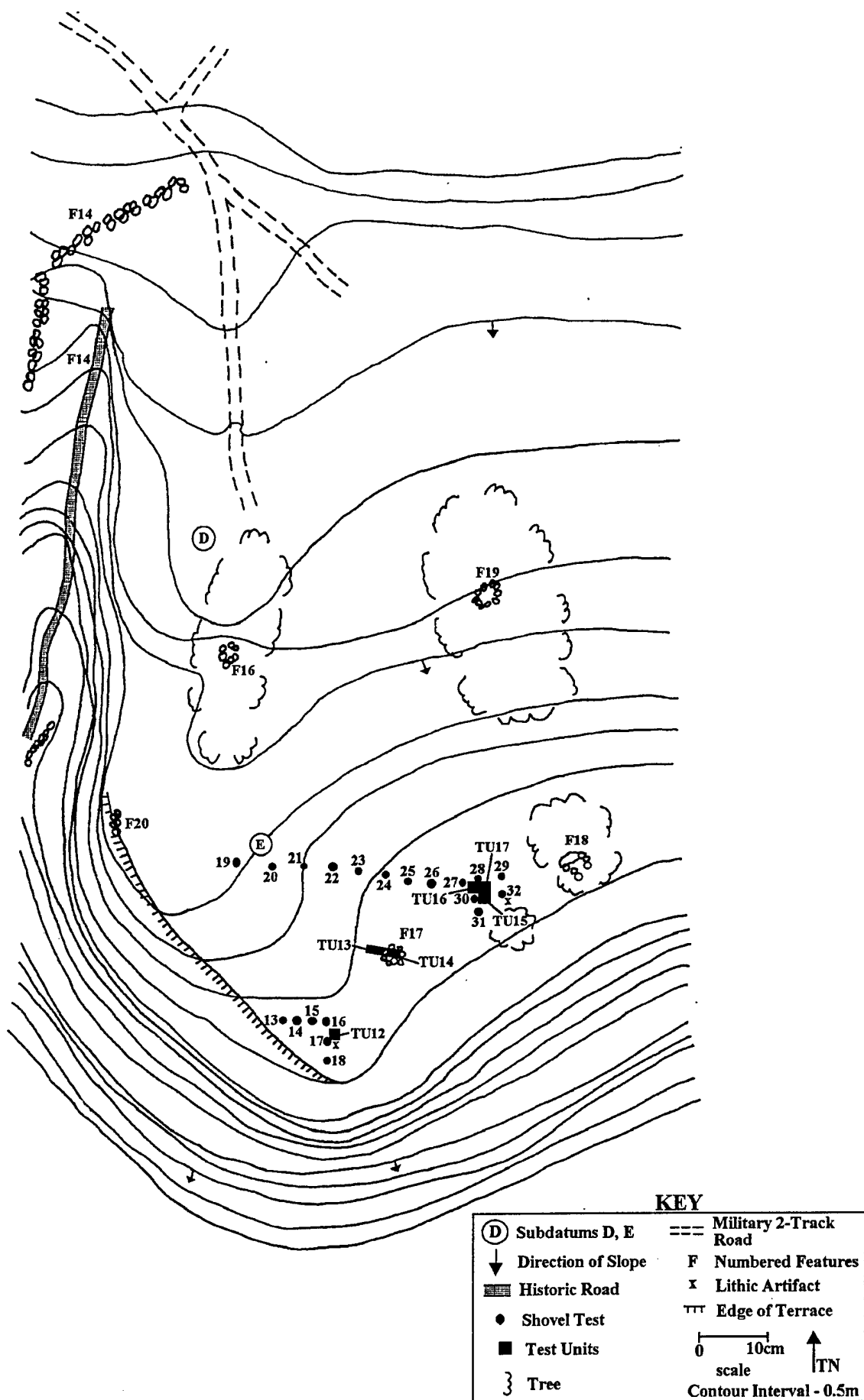


Figure 7.3 Area B, eastern portion of site 5EP2524

Feature Descriptions

Twenty-one features were identified and recorded at the site. These features were constructed of boulder- to-cobble-sized granite and minor amounts of sandstone rocks. Rocks in the features was either stacked or in a single course. Four major morphological types identified are: linear, circular, rectangular, and u-shaped. Some of these features were initially perceived to be prehistoric, possibly Woodland structures (Connor 1996). Four of the twenty-one features were test excavated. These four represent a sample of the types of features at the site. The following section provides a description of the features which were not tested. The four tested features (Features 1, 2, 11, and 17) are discussed in detail later in the chapter. Photographs were taken of all features including those tested. Three features (Features 4, 16, and 18) that were not tested were drawn as well. These were drawn to scale to document the variety within the feature types. Five of the features (Features 11, 14, 15, 18, and 20) have cliff-edge placement, and three (Features 14, 15, and 20) are stacked-stone walls. Cliff-edge placement is described as an architectural unit within 12 m of the edge of the escarpment (Lintz and Anderson 1989:91). The remaining features, including all but one of the excavated features, are free standing, contiguous-rock enclosures. The terms used to describe these rock features are consistent with those used in Lintz and Anderson (1989:91). Only one of the features (Feature 21) is agglutinated (architectural units which share a common wall [Lintz and Anderson 1989:92]). The remaining features are isolated units, which means they do not share a wall with other architectural units. Full and partial enclosures are present, and in some cases a soil berm completes a partial rock wall.

The definitions for rock sizes are taken from Bates and Jackson (1984). A boulder is defined as having a diameter greater than 10 in. (25 cm), or larger than a volleyball. A cobble is smaller than a boulder and larger than a tennis ball 2.5 in. (6 cm). A pebble is smaller than a cobble and larger than a granule (pea). These terms are used consistently through the report.

Feature 3 Feature 3 (Figure 7.2) is near the center of the site. This feature is on the edge of the terrace overlooking an open grassy area. The feature is in the midst of a thicket of scrub oak and brush. Pleistocene boulders are exposed in the immediate vicinity of the feature.

Feature 3 is roughly rectangular and measures 2.1 m x 2.6 m. The structure is constructed of local outcropping rock. A single course of partially embedded rock characterizes the feature. The northwest corner has one rock stacked on top of the first course. The east side of the structure has slumped leaving this side exposed. A slight depression in the interior was noted. The base of the depression is approximately 20 cm below surface. No artifacts, prehistoric or historic, are directly associated with the feature.

Feature 4 Feature 4 is one of the northernmost features (Figure 7.2). This feature is located along the eastern edge of a small fluvio-glacial ridge that trends north-northwest to south-southeast. This area of the ridge is covered by scrub oak and brush. The area

immediately to the east-northeast is at a slightly lower elevation and is characterized by open grassland. The ridge consists of cobble- to boulder-sized glacial material.

Feature 4 is circular and measures 2.6 m x 2.4 m along the exterior (Figure 7.4). The maximum interior diameter is 1.6 m. The structure is constructed of glacial boulders and cobbles. A few of the larger boulders are naturally embedded in the soil while the majority of rock rests on the present ground surface where they were either rolled or lifted into position. It appears that the larger embedded boulders were simply incorporated into the structure. A single course remains except one area where single occurrences of two and three courses are present. The interior of the feature is slightly depressed; 20-30 cm lower than the surface outside the feature. There are no prehistoric or historic artifacts associated with the feature.

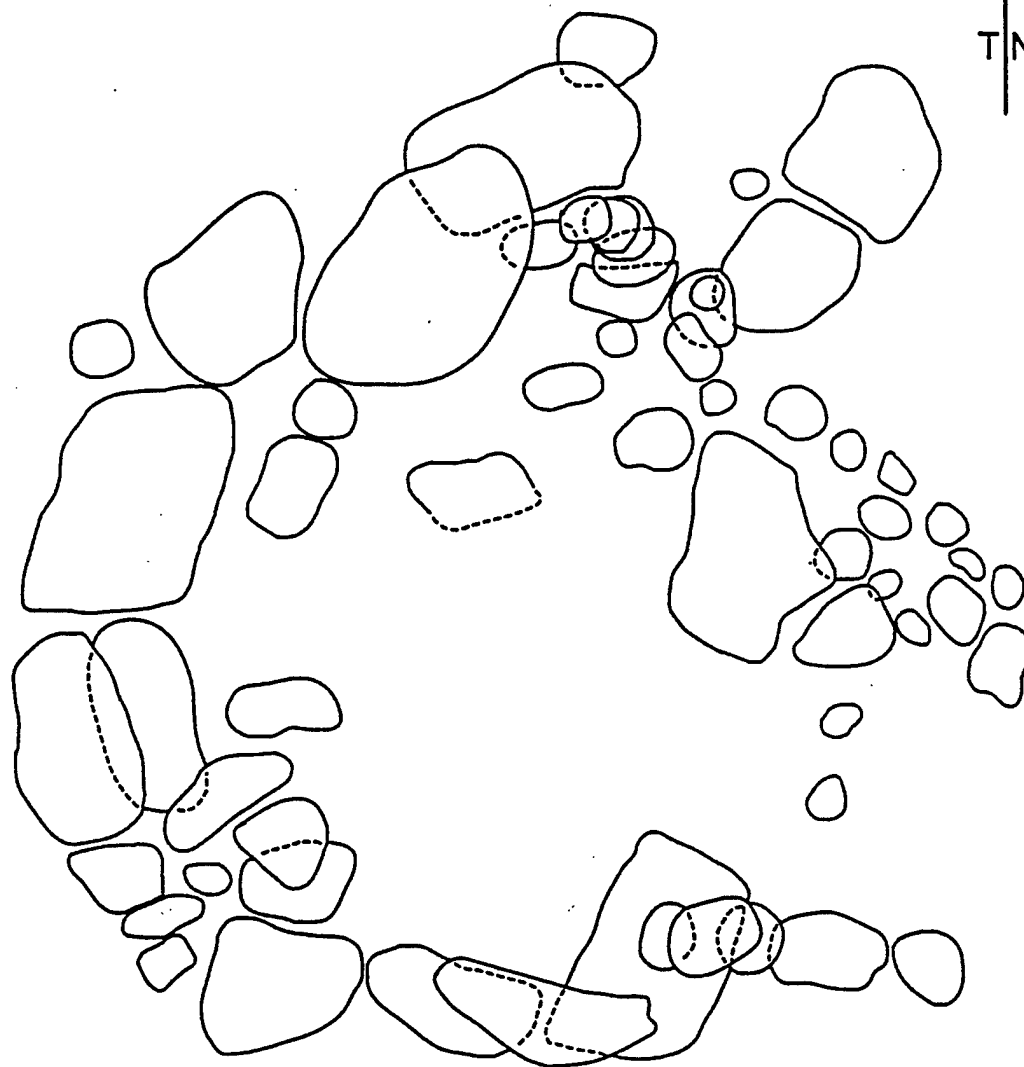
Feature 5 Feature 5 is near the northernmost portion of the site (Figure 7.2) and is located along the eastern edge of a low fluvioglacial ridge that is oriented north-northwest to south-southeast. The feature is in a thicket of brush. Both the ridge and the eastern slope are covered with naturally occurring glacial rock of all sizes. The area immediately to the east and northeast is slightly lower in elevation and is characterized by open grassland. A linear pile of rock just west of the feature is the result of clearing activities for a transmission line.



Feature 5 is a half circle or partial u-shaped enclosure. The feature is comprised primarily of large embedded rocks that appear to be in their natural position. The feature measures 2 m from north to south and 3 m east to west from the apex of the arc to a point parallel to the ends of the arc. The north end of the arch slopes slightly off the glacial ridge. This shape may simply be the way the rock has been exposed. One small area of the arc has a second course, but the feature primarily is a single course of rock incorporating the larger, naturally embedded rock and other intentionally rolled or stacked rock. The interior of the arc follows the natural slope and does not appear to have been recently excavated. A small wooden crate was found partially buried in the interior of the feature. A trowel probe of the interior suggested that rock is present immediately below the duff, which is not unusual because the surrounding sediments are naturally rocky.

The only evidence for cultural use of this feature is the wooden crate, which is of probable military origin.

Feature 6 Feature 6 is in the north-central part of the site between Features 7 and 13 (Figure 7.2). The feature is approximately 6 m from the north to south trending low, fluvioglacial ridge that consists of cobble- to boulder-sized rock. Feature 6 is open to the grassy terrace to the east northeast. A stand of scrub oak shields the feature from view.

5EP2524
Feature 4



 Rocks/Boulders
 Inferred

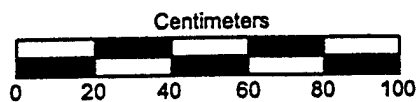


Figure 7.4 Plan view map, Feature 4, 5EP2524.

Feature 6 is circular and measures 2.5 m x 3 m. A rock and soil berm is present along the exterior. The berm consists of six large boulders, smaller gravel, and sediments. Three similar-sized boulders have apparently fallen into the interior of the feature. The interior is roughly conical with the lowest point near the center approximately 50 cm lower than the surrounding ground surface. The excavated dirt was used to construct the berm. No prehistoric or historic artifacts are present on the surface in the immediate area of the feature.

Feature 7 Feature 7 is in the north-central part of the site (Figure 7.2) and within a short distance of Feature 6, which shares its general appearance. Feature 7 is partially shielded from view by piñon pines and small brush.

Feature 7 is circular and measures 2 m x 2 m. A dirt and gravel berm excavated from the interior of the feature surrounds the feature. Four small boulders line the rim of the berm as well. The largest boulder (60 cm x 50 cm x 40 cm) is tilted and poised to fall into the interior of the feature. The feature interior is 40 cm below the present ground surface and is roughly conical in cross-section. Two small rocks rest just outside the berm and nearly a dozen small cobbles in close proximity may have eroded from the berm. The placement of rock atop the berm provides greater concealment and depth to the feature. No prehistoric or historic artifacts are presently associated with this feature.

Feature 8 Feature 8 is located near the center of the site and above a shallow drainage. (Figure 7.2). Open grassland is visible to the northeast. The feature is located beneath a piñon pine tree and a juniper tree. Feature 8 is roughly rectangular and has an exterior diameter of 3 m x 3.2 m. The structure is constructed from the local glacial boulders. A one-meter long boulder, which covers a quarter of the interior, is the focal point of the feature (Figure 7.5). Small cobbles and pebbles are piled on top of the north edge of the large boulder. The walls extend outward where the equivalent of two to three courses of rock is present. Some rock is stacked while others are simply piled. The lower course is not silted in. The remaining walls are ephemeral with an occasional boulder or cobble. Dirt is mounded on the east side of the large boulder. Portions of a wall are present on top of the mound. Dirt was either excavated from the interior or mounded up from the east side of feature. The interior is basin-shaped and was excavated approximately 40 cm below the ground surface at the deepest point. No artifacts are present in the immediate vicinity.

Feature 9 Feature 9 is situated on the terrace edge (Figure 7.2) overlooking a shallow drainage, which bisects the site. The feature is positioned in a small open area surrounded by piñon pine, juniper, and brush.

Feature 9 is a roughly circular depression with an outside diameter of 2.8 m x 2.3 m. A single course of cobbles is located on the east and north sides of the depression forming a u-shaped partial enclosure. This course of stone rests on a slight berm of pebbles and dirt, which was most likely excavated from the interior of the depression. The depression is basin-shaped, and the deepest point in the interior is approximately 30 cm below the present

ground surface. The interior has very little humus build up. No artifacts are directly associated with this feature.



Figure 7.5 Photograph of Feature 8, 5EP2524. View is to the east.

Feature 10 Feature 10 is near the western edge of the site (Figure 7.2) in an area of naturally occurring, large boulders. This area of the site is shielded from view by piñon pine, juniper, and scrub oak. Scrub oak is present in the interior of the feature.

Feature 10 is rectangular and measures 5.2 m x 3.1 m. The southern part of the eastern wall is the most discernible. A single course of five cobbles lies on top of a long embedded boulder. The southeast corner also has a small cluster of cobbles that is an extension of the east wall to the south. The south side of Feature 10 is open. The northern and western walls are ephemeral with occasional, naturally occurring boulders that are slightly embedded and do not appear to have been altered. The feature's interior is slightly raised, the result of sediment and duff accumulation. The five cobbles on the east wall are

the only evidence of cultural manipulation. No prehistoric or historic artifacts are directly associated with Feature 10.

Feature 12 Feature 12 is located along the western edge of the site on a level area of the terrace (Figure 7.2). The feature is on the eastern edge of a large thicket of scrub oak and brush.

Feature 12 is rectangular and measures 1.6 m x 2.3 m. The feature is defined by a single course alignment of cobble- to small boulder-sized rock along the north edge of the feature. The other edges are defined by a rectangular-shaped depression that is 20 cm below the ground surface. The sides of the depression are fairly abrupt, and the base is level. No artifacts, historic or prehistoric, are directly associated with this feature.

Feature 13 Feature 13 is in the north-central portion of the site between Features 3 and 6 (Figure 7.2). Feature 3 is only a few meters east of Feature 13. A boulder-and cobble-strewn, north-to south-trending, low fluvoglacial ridge is approximately 6 m northeast of the feature. A large piñon pine is growing on the east side of the feature with small junipers along the west side. Open grassland is present beyond the glacial ridge to the northeast.

The feature consists of a u-shaped outline of boulders and a circular depression that measures 3 m x 2.5 m. The north half of the feature is lined with boulders, two of which are naturally embedded. The remaining rocks were either rolled or stacked in place. Three courses of rock occur in one place along the north edge. The stacked rock is cobble-sized. Four cobbles along the west side of the alignment appear to have been placed in upright positions leaning against the larger boulder alignment. The south half of the feature is outlined by a soil and pebble berm. The berm was created by the excavation of the interior area. The feature's interior is conical in cross-section. A plastic spoon and several small cardboard rifle-cartridge boxes were found partially buried by duff in the interior of the feature and represent the only associated artifacts.

Feature 14 Feature 14 is a historic road that traverses the middle of the site (Figure 7.2 and 7.3). From the appearance today, it looks as if the road was constructed in an old drainage. However, it is not certain if the drainage is the result of the road construction. The road can be followed to the bottom of the terrace where it bends to the west and runs parallel to Little Fountain Creek. This road is no longer visible after the current military road intersects the historic road in the drainage bottom (Figure 7.2). After the road ascends the terrace, it can be followed to the base of the next terrace where it dissipates (Figure 7.3). The total length of identified road is 140 m. In places the road is as much as 5 meters wide, but it narrows to 3 meters where it cuts into the terrace slope. The middle portion of the road is badly eroded in places and overgrown with brush. Along the terrace edge, rock walls were constructed along both sides of the road (Figure 7.6). These rock walls perhaps functioned as a repository for the rocks removed during construction and as stabilizing walls to prevent runoff from eroding the sides of the road. The average wall is from one to five courses high (30 - 70 cm).

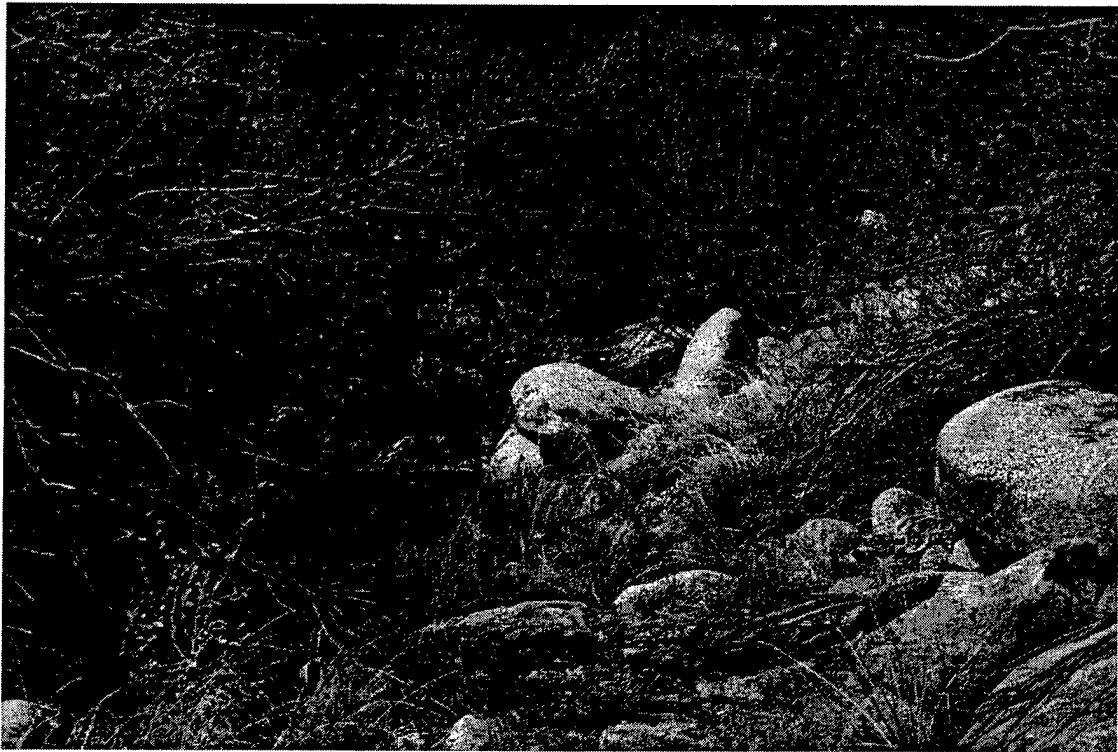


Figure 7.6 Photograph of Feature 14, 5EP2524. View is to the southwest.

It is possible that this alignment represents, or is related to, the historic Old Colorado Springs and Canon City road reported to be in the vicinity (Scott 1975). A records search was conducted at the BLM office in Canon City, the County Assessor's Office in Colorado Springs, and the Fort Lewis Library. Notes (Hildebrand 1996) were obtained from the BLM office in Canon City on a survey conducted in 1872. The surveyors briefly mention the presence of a road between Sections 11 and 12. The specific location of the road within the interior of Section 12; however, was not included in these cursory notes. The 1889 Hayden Survey (Hayden 1889:83) shows a road entering Section 12 through Deadman Canyon and continuing southeast along Little Fountain Creek before ascending the terrace. However, the road on the Hayden Survey does not ascend the terrace at this location but further to east. Historic artifacts in the road are rusted fragments of metal and a single piece of solarized glass. It is suggested that this road dates to the general period from 1870 to 1910.

Feature 15 Feature 15 is a boulder alignment on the far western section of the site (Figure 7.2). This alignment measures about 42 m long and 1.5 m wide. The alignment is constructed primarily of boulders with a few cobbles (Figure 7.7). A break in the alignment exists between 15 to 38 m from the southern end of the alignment. The alignment separates



Figure 7.7 Photograph of Feature 15, 5EP2524. View is to the east.

the larger terrace from a lower bench of the terrace. This alignment is interpreted to be a historic fenceline or property line. A light scatter of historic glass and ceramics is present along the west edge of the alignment. The scatter contains approximately eighty pieces of glass representing fragments of at least three bottles: solarized, dark green, and clear glass. A solarized bottle top with a patent-lip finish was collected. Four pieces of the dark-green glass appear to have been intentionally altered by flaking one edge for use as a cutting or scraping tool. The solarized glass is pre-WWI in age. Dark-green glass is this old as well and may date as early as the later part of the 19th century. Approximately twenty pieces of white earthenware consistent with fragments of a single plate or cup, complete the historic artifact assemblage. Diagnostic artifacts in the scatter date from the 1880-1917 period. It is suggested that the boulder alignment is associated with the same general period as these artifacts.

Feature 16 Feature 16 is on the northern edge of the eastern half of the site (Figure 7.3). This feature is located on a small, slightly raised fluvioglacial ridge with glacial boulders and cobbles. A piñon pine is on the east side of the feature and a thicket of brush surrounds the immediate area. The ridge is surrounded by a flat, open grassland.

Feature 16 is circular and measures approximately 4 m x 4 m (Figure 7.8). It is constructed of two to four courses of stacked large, cobble-size to small, boulder-sized rock. Naturally occurring boulders in the glacial outcrop are incorporated into the feature. The interior is unaltered. Two large boulders are embedded in the center of the feature. Two military rifle casings were observed two meters west of the feature. A small piece of cloth and fragments of plastic packaging, possibly from k-rations, were found in the interior. These materials represent the only artifacts.

Feature 18 Feature 18 is on the east edge of the site approximately 20 m north of the terrace edge (Figure 7.3). The feature is located on the south end of a small fluvioglacial ridge with an outcrop of glacial boulders and cobbles. The west edge of the feature is visible while the rest of the feature is shielded from view by piñon pine and brush. The surrounding area is open grassland.

Feature 18 is u-shaped and measures 2.6 m x 2.4 m (Figure 7.9). Small glacial boulders and cobbles are the primary construction material. One large embedded boulder (1.4 m x 0.65 m) forms the northwest end of the feature. Smaller boulders and cobbles have been stacked or rolled into place forming the side walls of the u-shape feature. One to three courses of rock are present in these walls. The lower course of the southern wall utilizes the smaller embedded boulders, that are almost completely buried. The structure is oriented to the northwest with the open end toward the southeast and toward the terrace edge. The interior is level and shows no indication that it was dug out. One piece of clear bottle glass was found along the west side of the feature, and a k-ration can was found on the surface at the open end of the structure. A trowel probe of the interior indicated that rock is encountered from the surface to 15 cm below the surface. The open end has 20-25 cm of sediment before rock is encountered. The open end is also furthest from the glacial outcrop.

Feature 19 Feature 19 is on the east edge of the site (Figure 7.3). The feature is located under a piñon pine tree on the north side of a small fluvioglacial ridge of boulders and cobbles. Brush surrounds all but the eastern edge of the feature. The area adjacent to the rise is characterized by open grassland. Feature 19 is circular and measures 2.5 m x 2.3 m (Figure 7.10). The piñon pine is on the west side of the alignment and appears incorporated into the structure. Construction of the circle consists primarily of a single course of boulder-to cobble-sized rock. Embedded boulders are incorporated into the circle along all but the east side where smaller rocks are stacked. At two places along the east wall, two courses of rock are present. The feature's interior is relatively flat with an accumulation of duff. A trowel probe of the interior indicated underlying rock below 5-15 cm of duff and loose dirt.

5EP2524
Feature 16

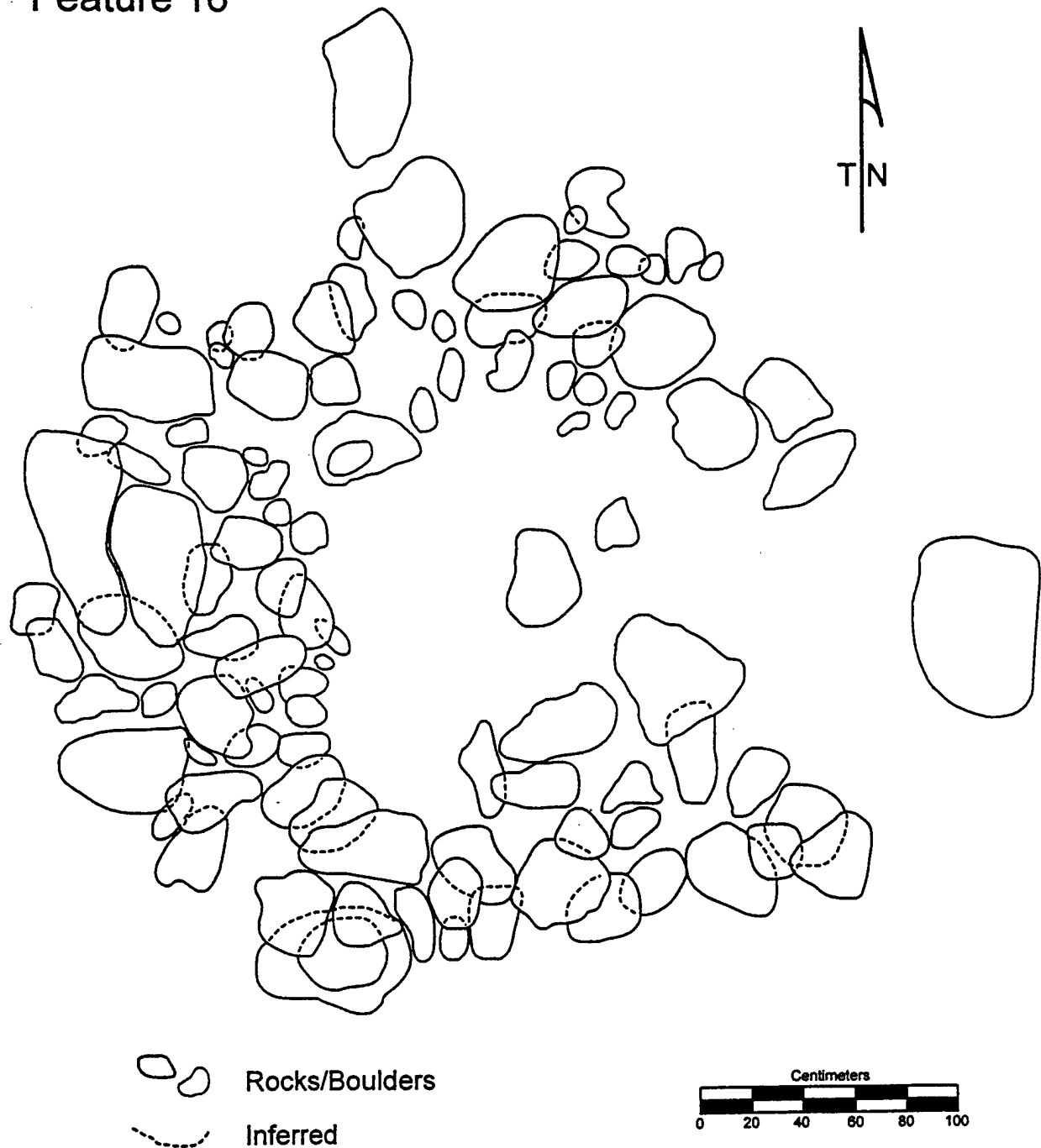


Figure 7.8 Plan view map, Feature 16, 5EP2524.

5EP2524
Feature 18

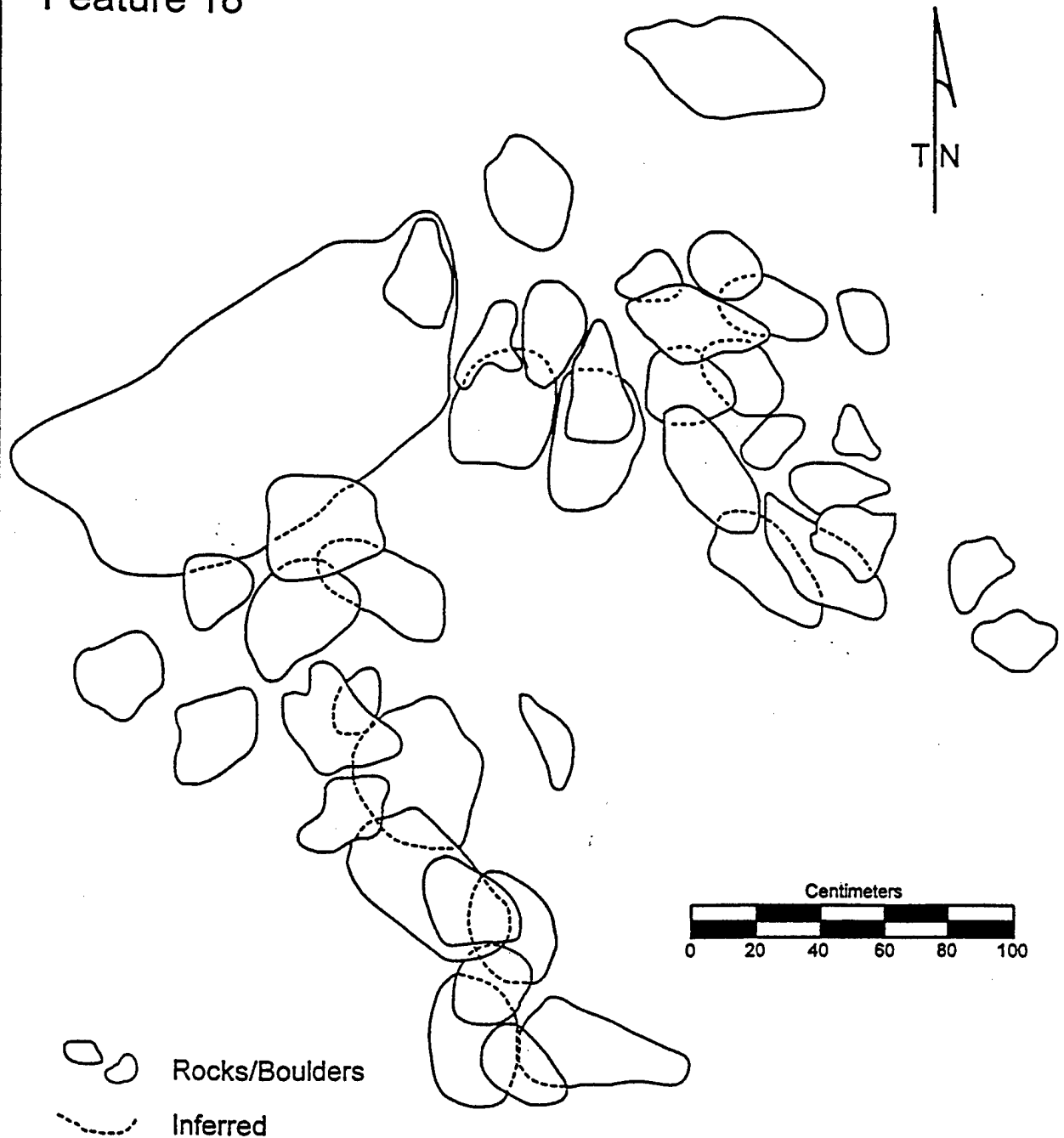


Figure 7.9 Plan view map, Feature 18, 5EP2524.



Figure 7.10 Photograph of Feature 19, 5EP2524. View is to the south-southwest.

No surface artifacts are found in direct association with the feature. A small piece of aluminum foil-like material was found 5 m north of the feature.

Feature 20 Feature 20 is located along the terrace edge overlooking a steep slope above the ephemeral drainage that bisects the site (Figure 7.3). The feature is on the west side of a small clearing in an area dominated by brush vegetation. Numerous, naturally occurring, small boulder- to cobble-sized rock are exposed along the edge of the terrace and along the low fluvoglacial ridge just east of the feature.

This feature consists of a 2.5 m long alignment of boulders and cobbles along the terrace edge. The wall is aligned north to south and is oriented to overlook the drainage. The feature is characterized by the presence of large embedded boulders at the ends of the feature with rolled and stacked smaller boulders and cobbles completing the alignment. The middle of the wall is not stacked, but instead has a piled appearance. The rock here actually extends slightly down slope. One small piece of rubber was observed near the feature. A few meters southeast of Feature 20 along the canyon rim is a sandbag. This sandbag was found resting on some small boulders.

Feature 21 Feature 21 is the northernmost feature recorded on the site (Figure 7.2). It is a few meters north of Features 2 and 5. Feature 21 is on the upper edge of the north-south trending, low fluvioglacial ridge. The area is extremely rocky with little exposed soil. The area is in a dense thicket of brush vegetation. Open grassland is just east and northeast of the glacial ridge. A clearing for a transmission line is directly west of the feature.

Feature 21 consists of two enclosures that share a common wall. The dimensions of the feature are 5.1 m x 2.8 m. The western enclosure has a u-shaped boulder outline that measures 2.8 m x 1.5 m. The orientation of the enclosure is to the northeast. The south half of the arc has three courses of stacked rock. The upper courses are large cobble-to small, boulder-sized rocks. The eastern enclosure of Feature 21 is a small (2.3 m x 2.5 m) circle. The circle incorporates large boulders on the north and south sides that are most likely in place. A few stacked-cobble courses are present along the east side of the circle. The west side of the circle is a single course of boulders that represents the common wall between the enclosures. Trowel probes within both the arc and the circle of rock indicate very shallow sediment over rock. The duff and loose dirt above the buried rock is 10-15 cm thick. Some rock is exposed on the surface of the interior of the feature. The interior appears to be unaltered and at the same elevation as the surrounding ground surface. No prehistoric or historic artifacts were associated with the feature.

Subsurface Investigations

Subsurface investigation at 5EP2524 includes excavation of thirty-two shovel tests and seventeen test units. The locations of these tests are shown on the site map (Figure 7.2 and Figure 7.3).

Shovel Tests

Thirty-two shovel tests were conducted in two areas of the site. The shovel tests were spaced 4 m apart and were oriented along cardinal directions. Shovel Tests 1 - 12 were located on the lower level of the terrace below Feature 15 in the area of the historic artifact scatter (Figure 7.2), while two sets of shovel tests were excavated in the southeastern quarter of the site (Figure 7.3). Shovel Tests 13-18 were placed near the terrace edge while Shovel Tests 19-32 were placed slightly to the north. These shovel tests were placed to obtain information about the likelihood of subsurface archaeological deposits in the eastern half of the site. The thirty-two shovel tests are summarized in tabular format (Table 7.1). Single rifle casings were recovered at a shallow depth in Shovel Tests 7, 11, and 18. One rifle casing was found on the surface of Shovel Test 6. These rifle casings are all related to the military. The caliber of these shells is consistent with other military casings found throughout the FCMR. A single flaked-lithic artifact was recovered from Shovel Test 11 at a depth between 35-45 cm below ground surface. A single flaked-lithic artifact was also recovered from 0-15 cm in Shovel Test 29.

Table 7.1. Shovel Test Results, 5EP2524.

Shovel Test No.	Diameter (cm)	Depth of Stratum (cm)	General Stratigraphic Description	Materials Recovered
1	31 x 35	30	Consistent sandy loam with little variation in texture. Cobbles at 30 cm.	No artifacts.
2	39 x 34	0 - 5 5 - 35	Organic, duff with silt Sandy loam with silt. Cobble encountered around 20 cm in depth.	No artifacts.
3	45 x 45	0 - 20 20 - 42	Organic, duff Sandy loam with silt. Degree of cobbles at lower levels decreased greatly from ST #2.	No artifacts.
4	32 x 36	0 - 15 15 - 38	Organic, duff Sandy loam with silt. Increased presence of pebbles and cobbles near bottom.	No artifacts.
5	30 x 30	0 - 5 5 - 50	Organic, duff Sandy loam with silt. Decreased presence of gravel compared to ST #4	No artifacts.
6	34 x 31	0 - 10 10 - 35	Organic, duff Sandy loam with silt with minimal gravel.	1 rifle casing shell (surface)
7	29 x 27	0 - 32 32 - 35	Silt loam with gravel. Soil changes (near 30 - 32 cm) into harder silt with larger pebbles and cobbles.	1 rifle casing (3 cm).

Shovel Test No.	Diameter (cm)	Depth of Stratum (cm)	General Stratigraphic Description	Materials Recovered
8	28 x 31	0 - 10	Organic, duff with large cobbles at 7 - 10 cm.	No artifacts.
9	32 x 31	0 - 15 15 - 43	Charcoal encountered in duff. Sandy loam with minimal gravel and no cobbles.	No artifacts.
10	27 x 29	0 - 14 14 - 22	Organic, duff Silt loam with a high density of gravel. Hard-packed sediments encountered at 22 cm.	No artifacts.
11	26 x 32	0 - 25 25 - 40	Organic, duff Sandy loam with silt characterized by little gravel.	Rifle casing at 5 - 15 cm. Flake at 35 - 40 cm.
12	30 x 31	0 - 5 5 - 28 28 - 32	Organic, duff Sandy loam with silt and some gravel. Hard-packed sediments.	No artifacts.
13	30 x 28	0 - 11	Large cobble encountered at 5 - 10 cm below surface.	No artifacts.
14	30 x 28	0 - 14	No noticeable soil change. Hard-packed gravel loam encountered at 14 cm.	No artifacts.
15	35 x 31	0 - 10	No noticeable soil change. Hard-packed gravel loam encountered at 10 cm.	No artifacts.
16	34 x 33	0 - 12	Hard-packed gravelly sandy loam.	No artifacts.
17	32 x 28	0 - 12 12 - 22	Sandy loam with silt. Decreased presence of gravel. Increased gravel. No soil change noticeable.	No artifacts.
18	38 x 32	0 - 10 10 - 30	Sandy loam with low levels of gravel. Roots encountered around 20 cm.	1 rifle casing (2 cm).

Shovel Test No.	Diameter (cm)	Depth of Stratum (cm)	General Stratigraphic Description	Materials Recovered
19	32 x 30	0 - 8	Sandy loam with large cobbles at 8 cm.	No artifacts.
20	36 x 31	0 - 25	Sandy loam with gravel.	No artifacts.
21	31 x 26	0 - 10	Hard-packed and cobbley at 8 - 10 cm. Sandy loam with gravel.	No artifacts.
22	30 x 29	0 - 10	Sandy loam with gravel. Hard-packed loam with gravel.	No artifacts.
23	32 x 30	0 - 10	Consistent sandy loam with gravel.	No artifacts.
24	30 x 29	0 - 14	Sandy loam with gravel.	No artifacts.
25	31 x 29	0 - 12	Brown sandy loam with gravel.	No artifacts.
26	51 x 49	0 - 20 20 - 42	Brown sandy loam with gravel. Gradual change to more of a red brown. Sandy loam, compacted. Caliche noted at base.	No artifacts.
27	50 x 49	0 - 18 18 - 28	Sandy loam with gravel and increased roots. Reddish brown sandy loam with 10 - 20 cm long cobbles covering base.	No artifacts.
28	46 x 44	0 - 19 19 - 46	Brown, sandy loam. Hard soil with gravel. Red brown with heavy concentration of large cobbles.	No artifacts.
29	49 x 48	0 - 18 18 - 55	Sandy loam with decreased presence of gravel. Reddish brown sandy loam.	1 flake (0 - 15 cm).

Shovel Test No.	Diameter (cm)	Depth of Stratum (cm)	General Stratigraphic Description	Materials Recovered
30	48 x 48	0 - 15 15 - 42	Brown, sandy loam with gravel. Red brown sandy loam.	No artifacts.
31	42 x 43	0 - 10 10 - 28	Brown, sandy loam with gravel. Red brown sandy loam. Large weathered cobble at 14 - 28 cm.	No artifacts.
32	43 x 41	0 - 14 14 - 45	Brown sandy loam with smaller gravel. Sandy loam with fist-sized and larger cobbles.	No artifacts.

Test Unit Excavations

A total of 17 test units were excavated at this site (Table 7.2). Eight of these units were placed to investigate features, and the remaining nine (1 m²) were placed in areas away from the features to test for buried cultural deposits. Four of the twenty-one features were test excavated. These four represent a sample of the types of features at the site. Two test units, one in the interior and one on the exterior, were excavated within the features. These test units were 0.5 m wide, and the length varied based on feature size.

Table 7.2. Test Unit Results, 5EP2524

Test Unit No.	Size (m)	Levels Excavated	Feature No.	Final depth (cm BGS)
1	1 x 1	4	NA	31-38
2	1.45-1.4 x 0.5	3	1	22-26
3	1.83-1.92 x 0.5	2	1	12-20
4	1.6 x 0.5	2	2	5-16
5	1.5-1.4 x 0.5	3	2	14-30
6	1 x 1	3	NA	20-30
7	1 x 1	4	NA	40-41
8	1 x 1	7	NA	65-72
9	1 x 1	5	NA	40-44
10	0.88-0.83 x 0.5	3	11	0-28
11	1.06-1.04 x 0.5	5	11	6-48
12	1 x 1	4	NA	32-40
13	1.52-1.4 x 0.5	4	17	16-33
14	2.02-1.56 x 0.5	3	17	20-28
15	1 x 1	6	NA	46-62
16	1 x 1	5	NA	50-52
17	1 x 1	5	NA	36-46

Test Unit 1

Test Unit 1 was placed 1.5 m upslope from two flaked-lithic artifacts exposed on the surface (Figure 7.2). The unit was placed here to determine the likelihood of buried archeological deposits in this area of the site. Four levels were excavated in arbitrary 10 cm levels to a depth of 38 cm below ground surface (Table 7.3). Waterscreen samples were taken from the northwest corner. A large boulder, first exposed in Level 3, precluded further excavation in the unit (Figure 7.11).

Table 7.3. Results of Test Unit 1, 5EP2524

Level No.	Bottom Depth (cm BGS)	Materials Recovered (Screen Size)	
		1/4"	waterscreen
1	10	1 flake	1 flake
2	20	1 utilized flake, charcoal	No artifacts
3	30	1 flake	1 flake
4	38	No artifacts	No artifacts

The north and west walls were cleaned and photographed, and a cross-section profile was drawn of each wall. Figure 7.12 is an illustration of the stratigraphic units defined for the wall profile. Three strata were defined in the unit, and they are described below.

Stratigraphy Test Unit 1

Stratum 1 This stratum is a brown to dark brown (10YR 4/3) sandy loam with coarse silt. It is granular to weak blocky in texture and moderately to heavily mottled. On the west half of the unit a huge oval granite boulder (Pleistocene bedrock) takes up most of the unit. Clast size increases in the unit over the previous strata, and these clasts are angular to subangular. Material types include granite, diorite, feldspar, quartz, and sandstone. Some bioturbation is evident. The sediments did not react with hydrochloric acid. The lower boundary is concealed. This stratum represents the lower B soil horizon. Two artifacts were recovered from this stratum.



Figure 7.11 Photograph of Test Unit 1, 5EP2524. View is to the north-northwest.

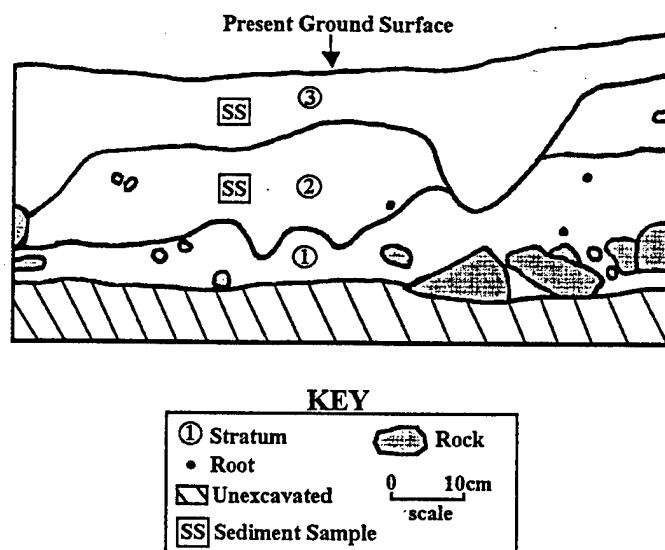


Figure 7.12. West Wall Profile, Test Unit 1, 5EP2524.

- Stratum 2 This stratum is a dark grayish brown (10 YR 4/2) to very dark grayish brown (10 YR 4/3) sandy loam. The lower boundary is clear but slopes from north to south due to a large Pleistocene boulder that occur in the southwest portion of the unit. The sand content increases over Stratum 3. Stratum 2 is loose, friable, and easy to excavate. The structure is granular to weak blocky. Angular to subrounded gravel (10%) are distributed evenly over the unit. There was no reaction to hydrochloric acid. This stratum is a B soil horizon. The stratum is 2 to 9 cm thick in this exposure. It is heavily mottled with roots and bioturbation. A single artifact was recovered from this loamy stratum.
- Stratum 3 This is the upper soil horizon (A). This horizon ranges from 9 to 14 cm thick. It consists of a very dark gray (10 YR 3/1) to a very dark grayish brown (10 YR 3/2) sandy loam with silt. It is loose and friable, with clasts of angular to subrounded granite (10%) scattered throughout. The soil structure is granular to weak blocky. It is slightly mottled and does not react with hydrochloric acid. The lower boundary is clear. Rootlets and bioturbation were noticed in the stratum along with two prehistoric artifacts.

Three flaked-lithic artifacts were recovered during excavation, a fourth flaked-lithic artifact, a flake, was recovered from the soil sample in Level 1, and a fifth artifact, a flake, was recovered from the waterscreen sample in Level 3 (Table 7.3). This last artifact would have fallen through the ¼ in. screen. These five artifacts include one brown quartzite flake with unimarginal use wear, one brown chert complete flake, one brown chert flake fragment, one gray quartzite flake fragment, and one red chert flake fragment. A very small amount of charcoal was collected from the waterscreen sample in Level 2. The charcoal was too small to process. Testing at this location has demonstrated that minimal artifacts are present in the subsurface; moreover, evidence of a definite ethnostratigraphic unit was not identified.

Test Unit 2 and Test Unit 3

Test Units 2 and 3 were excavated in a 0.5 m wide trench across Feature 1, which is located near the center of the site (Figure 7.2). The feature is an isolated, contiguous-rock structure. (Figure 7.13). The feature is in an open grassy area with one small juniper growing along the east side of the enclosure. The outside diameter of the feature measures 3.1 m x 3.1 m. The inside diameter is roughly 1.8 m x 1.5 m. The feature consists primarily of a single course of cobble-to boulder-sized rock. Two to three courses of smaller stacked rock are present on the northeast quarter of the enclosure at the base of the juniper. Bedrock



Figure 7.13 Photograph of Test Units 2 and 3, Feature 1, 5EP2524. View is to the east.

boulders have been incorporated into the outline. Other naturally occurring boulders are present in the immediate feature area. The closest surface artifacts, two flaked-lithic artifacts, are located 10 m west of the feature.

Test Unit 2 was excavated on the outside, and Test Unit 3 was excavated in the interior of the feature. Two levels were excavated on the inside (Test Unit 3) and three levels were excavated on the outside (Test Unit 2) of the feature (Table 7.4). The waterscreen samples were taken from opposite ends of the individual units. Excavation was terminated when naturally occurring cobbles and boulders prevented further work.

Table 7.4. Results of Test Units 2 and 3, 5EP2524.

Test Unit No.	Level No.	Depth cm (BGS)	Material Recovered (Screen Size)	
			1/4"	Waterscreen
Test Unit 2	1	10	1 flake	No artifacts
Test Unit 2	2	20	1 utilized flake	No artifacts
Test Unit 2	3	26	1 biface fragment	No artifacts
Test Unit 3	1	10	No artifacts	No artifacts
Test Unit 3	2	20	No artifacts	No artifacts

The north and west walls of the trench were cleaned, photographed, and profiled. A cross-section profile of the north wall is provided (Figure 7.14). Two strata were defined in the trench and are described below.

Stratigraphy Test Unit 2

Stratum 1 Stratum 1 is a very dark grayish brown (10 YR 3/2 to 10 YR 2/2) sandy loam that grades to a reddish brown (visually) toward the bottom (10 YR 3/3). The texture is a sandy loam with increased silt over Stratum 2. Soil structure in this B horizon is weak angular blocky. The clasts are angular to subrounded and include granite, quartz, and occasional sandstone in a poorly sorted, jumbled matrix. The percent of gravel is estimated at between 25 and 50%. The sediments

5EP2524
Feature 1

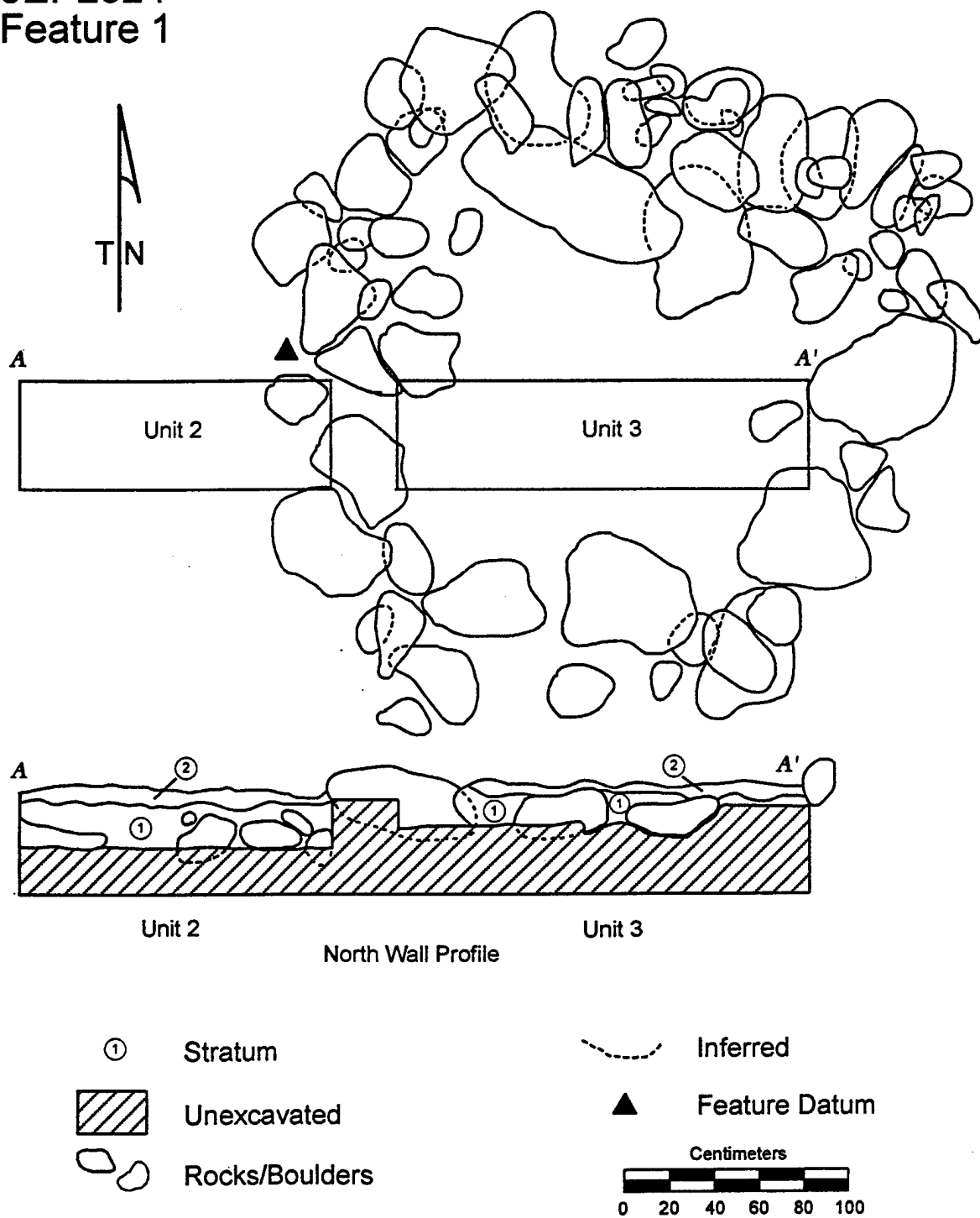


Figure 7.14 Plan view and north wall profile, Test Units 2 and 3, Feature 1, 5EP2524.

did not react with hydrochloric acid. Mottling is very slight, and an occasional artifact occurs in the stratum.

- Stratum 2 This is the upper A soil horizon. It consists of a very dark brown (7.5 YR 3/2) sandy loam. The structure is single grain to massive. The lower boundary is abrupt with Stratum 1. Mottling is slight, and the sediments did not react with hydrochloric acid. Gravel is estimated to be between 0 and 5% of the matrix. Stratum thickness ranges between 5 and 8 cm. An occasional artifact was recovered from the stratum.

Stratigraphy Test Unit 3

- Stratum 1 This stratum is identical to that described for Test Unit 2. Thickness of Stratum 1 in Test Unit 3 ranges between 4 and 11 cm.
- Stratum 2 This stratum is identical to that described for Test Unit 2. Thickness of Stratum 2 ranges from 4 to 5 cm.

Three artifacts were recovered from the excavation of Test Unit 2. These three artifacts include one brown chert utilized flake with bimarginal use wear, one gray chert broken biface fragment (possibly the base of a stemmed projectile point), and one chalcedony flake fragment. No artifacts were recovered from the excavation of Test Unit 3 on the interior of Feature 1. The waterscreen samples did not contain artifacts. Artifacts therefore were only recovered from the test unit outside of feature. These artifacts were recovered from ground surface to 26 cm below the surface. The broken biface may be the base of a stemmed projectile point, but it is too fragmentary to be more definite with the interpretation. There was no apparent stratigraphic separation of the artifacts in Test Unit 2, but the presence of artifacts to 26 cm below the surface indicates at least the possibility for a buried ethnostratigraphic unit. The rock forming the wall between the two test units rests on the present ground surface suggesting that this rock at least was recently moved to its present location and provides reasonable doubt to the prehistoric origin of the feature.

Test Unit 4 and Test Unit 5

Test Units 4 and 5 were excavated as a 0.5 m trench across Feature 2 (Figure 7.2), while Feature 2 is located near the northern edge of the site. The feature is in a sheltered area under a large piñon tree. Brush vegetation surrounds the feature area. Bedrock boulders and cobbles are common in the area of the feature. The outside diameter of the feature measures 3.3 m x 2.6 m, and the inside diameter is roughly 1.8 m x 1.6 m (Figure 7.15). Boulder- to cobble-sized rock are more common on the north and south ends of the feature. Naturally embedded boulders are incorporated into the feature. Cobble-sized rock is more common on the east and west sides where the rocks have been stacked to form the wall. The stacking consists primarily of two courses.

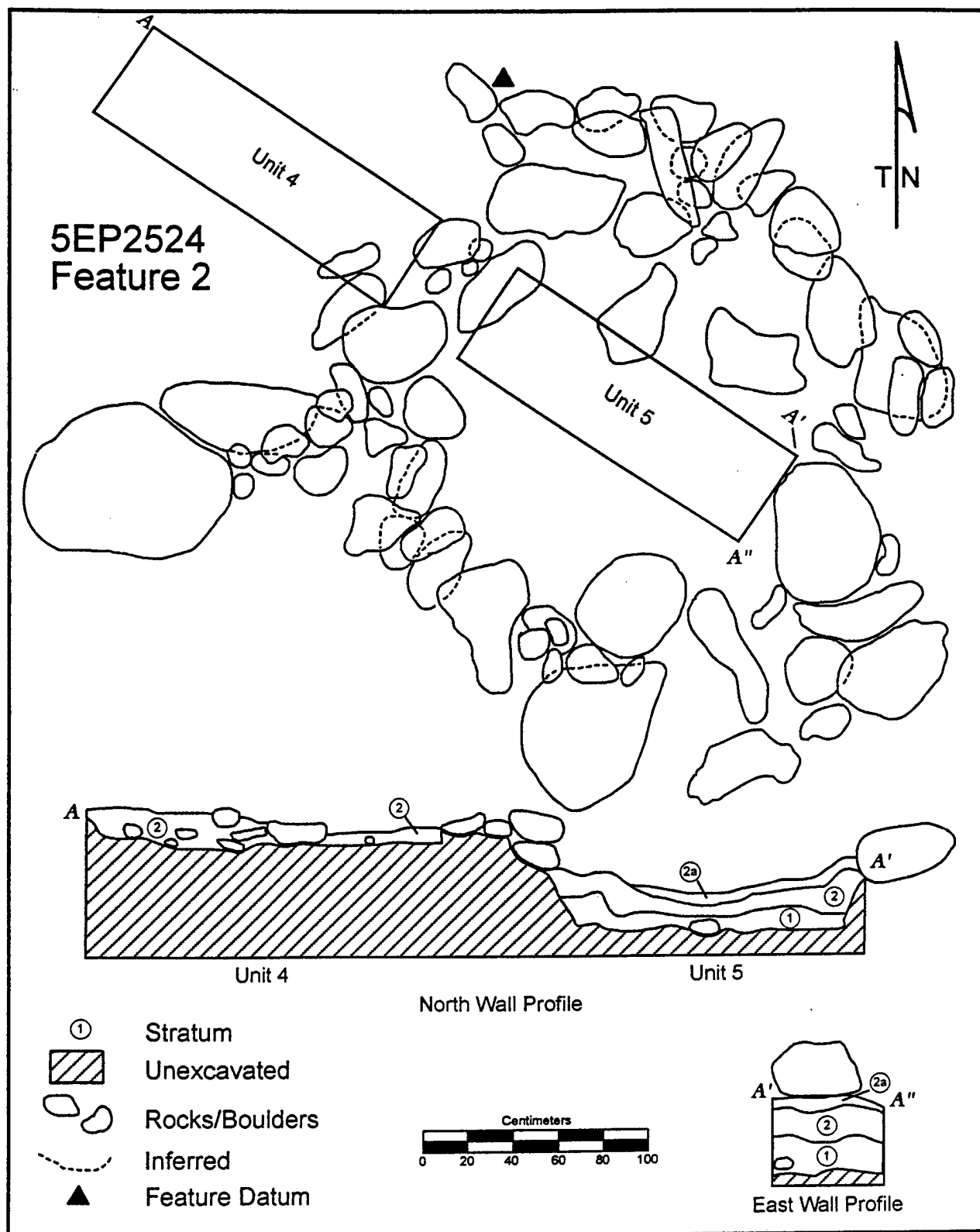


Figure 7.15 Plan view and north wall profile, Test Units 4 and 5, Feature 2, 5EP2524.

Test Unit 4 was excavated on the exterior of the feature, while Test Unit 5 was excavated within the interior. Two levels were removed from Test Unit 4, and three were excavated in Test Unit 5 (Table 7.5). The waterscreen samples were taken from opposite ends of the individual units. Excavation ceased when the density of naturally occurring cobbles and boulders precluded deeper excavation. All levels had high amounts of pebble-to-cobble-size rock. Larger cobbles were exposed at the base of both units. No artifacts were recovered from either test unit. One charcoal sample was recovered from the waterscreen sample of Level 1 in Test Unit 5. Although the sample was retained, the charcoal appears to be recently burned wood that was contained within duff.

Table 7.5. Results of Test Units 4 and 5, 5EP2524.

Test Unit No.	Level No.	Depth (cm BPGS)	Material Recovered (Screen Size)	
			1/4"	Waterscreen
4	1	10	No artifacts	No artifacts
4	2	16	No artifacts	No artifacts
5	1	10	No artifacts	Charcoal
5	2	20	No artifacts	No artifacts
5	3	30	No artifacts	No artifacts

The north and east walls were cleaned, photographed, and profiled. A cross-section profile of the north and east walls are provided (Figure 7.15). Three strata were defined in the trench, and they are described below.

Stratigraphy Test Unit 4

Stratum 2 This stratum is a very dark grayish brown (10 YR 3/2) sandy loam to fine sand. It is friable and easy to excavate. This stratum is a weak A soil horizon. It has a granular to weak blocky soil structure. The stratum contains lots of rootlets from the present blue grama grass. Angular to subrounded clasts of granite, diorite, andesite, quartzite, and quartz make up about 10% of the matrix. The lower boundary is concealed. The stratum is slightly mottled and does not react with hydrochloric acid. No artifacts were recovered from this stratum.

Stratigraphy Test Unit 5

- Stratum 1 This stratum consists of a dark yellowish brown (10 YR 3/6) sandy loam. Soil structure is granular to very weak blocky. The lower boundary is concealed. The stratum contains glacial boulders, and the gravel (20 to 30%) is comprised of angular to subrounded varieties of glacial outwash materials. This is the C horizon of weathered parent material with evidence for weak soil development. The stratum did not react with hydrochloric acid. It is hard to excavate, especially when dry. No artifacts were found in this stratum.
- Stratum 2 This is the A soil horizon. It consists of a brown to dark brown (10 YR 4/3) sandy loam with some silt. It is 14 to 15 cm thick. The structure is granular to weak angular blocky. Mottling is slight, and there is no reaction with hydrochloric acid. It is soft to slightly hard and easy to excavate. The gravel consists (10%) of various igneous material types. The clasts range from sand- to cobble-size. The lower boundary is abrupt. Recent flagging tape was recovered from this stratum.
- Stratum 2A This is a thin (2 - 4 cm) layer of undecayed organic matter mixed with sand (O horizon). There is no texture or soil structure in the stratum. The lower boundary is abrupt. The stratum does not react with hydrochloric acid. No artifacts were recovered from the stratum.

The feature is an isolated contiguous-rock structure (Figure 7.16). A single flaked-lithic artifact was noted 10 m southwest of Feature 2. Several military rifle casings were found next to the feature. One casing was noted on the surface in the interior of Feature 2. The interior of Feature 2 has a distinct depression that has partially filled with duff. The recent nature of the stratigraphy of Feature 2 along with the lack of prehistoric artifacts and the fact that the boulders forming the wall rest on the present ground surface suggest that this feature is of historic military origin.

Test Unit 6

Test Unit 6 was placed next to Test Unit 2 but further from the exterior of Feature 1 (Figure 7.2). The excavation of Test Unit 6 was directed at recovering more artifacts and possibly identifying a cultural horizon that was hinted at in Test Unit 2. The two units were not joined but shared a common corner, the southeast corner of Test Unit 6 and the northwest corner of Test Unit 2. Three levels were removed in Test Unit 6 (Table 7.6). Large cobbles appeared in Level 2, and by the base of Level 3 these cobbles prevented further excavation. The location of the waterscreen sample had to be moved for each level because the large cobbles hindered sample collection from a consistent location.



Figure 7.16 Photograph of Test Units 4 and 5, Feature 2, 5EP2524. View is to the southeast.

Table 7.6. Results of Test Unit 6, 5EP2524.

Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
		1/4"	Waterscreen
1	10	No artifacts	1 piece of clear glass
2	20	No artifacts	No artifacts
3	30	No artifacts	No artifacts

The north and east walls were cleaned, photographed, and profiled. A cross-section profile of the east wall is provided in Figure 7.17. Two strata were defined in the unit, and

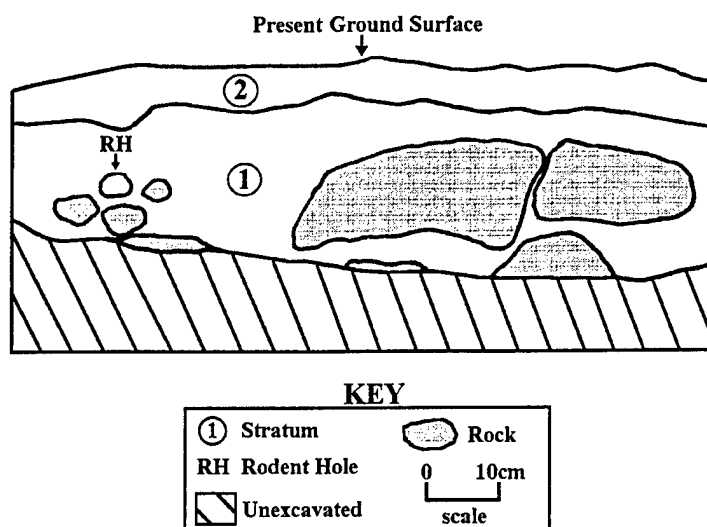


Figure 7.17 East wall profile, Test Unit 6, 5EP2524.

Stratigraphy Test Unit 6

- Stratum 1 Stratum 1 is a very dark grayish brown (10 YR 3/2 to 10 YR 2/2) sandy loam grading to a reddish brown (visually) toward the bottom (10 YR 3/3). The texture is a sandy loam with increased silt over Stratum 2. Soil structure in this B horizon is weak angular blocky. The clasts are angular to subrounded and include granite, quartz, and an occasional sandstone in a poorly sorted, jumbled matrix. The percent of gravel is estimated at between 25 and 50%. The sediments did not react with hydrochloric acid. Mottling is very slight in this 14 cm thick unit. No artifacts were recovered from this stratum.
- Stratum 2 This is the upper A soil horizon. It consist of a very dark brown (7.5 YR 3/2) sandy loam. The structure is single grain to massive. The lower boundary with Stratum 1 is abrupt. Mottling is slight, and the sediments did not react with hydrochloric acid. Gravel is estimated to be between 0 and 5% of the matrix. Stratum thickness ranges between 5 and 6 cm. One piece of clear glass was recovered from the stratum.

One artifact, a piece of clear bottle glass, was the only artifact recovered during testing, and this was recovered from the waterscreen sample in Level 1 (Table 7.6). The stratigraphy did not indicate a buried cultural horizon in this shallow test unit.

Test Unit 7

Test Unit 7 was placed in the historic artifact scatter on the southwestern corner of the site (Figure 7.2), to investigate the possibility of buried cultural deposits, prehistoric or historic, in this area. Four levels were excavated in the unit (Table 7.7). Waterscreen samples were taken from the northwest corner.

Table 7.7. Results of Test Unit 7, 5EP2524.

Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
		1/4"	Waterscreen
1	10	3 pieces of green glass	No artifacts
2	20	No artifacts	No artifacts
3	30	No artifacts	No artifacts
4	41	No artifacts	No artifacts

The west and north walls were cleaned, photographed, and profiled. Figure 7.18 is a cross-section profile of the west wall. Three strata were identified in the unit and are described below.

Stratigraphy, Test Unit 7

Stratum 1 This is a thick (total thickness unknown) layer of a fine sand loam with silt. It is grayish brown (10 YR 5/2) with moderate to heavy mottling. The sediments are alluvial with about 25% gravel. The gravel are weathered igneous rock with a few sandstone clasts. The top portion of the horizon has been bioturbated. Clasts are angular to subangular and consist of pebbles, cobbles, and boulders. The stratum reacts violently with hydrochloric acid. No artifacts were recovered from the stratum. This stratum represents a Bk to Crk soil horizon.

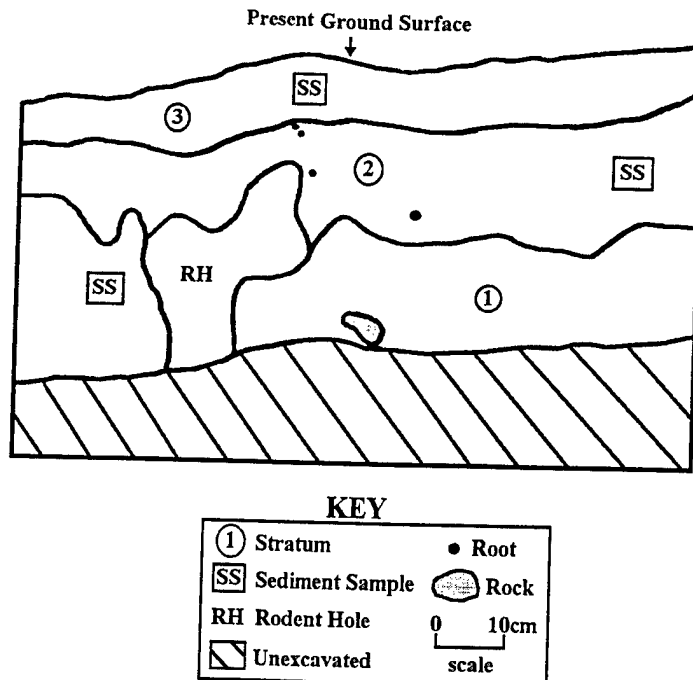


Figure 7.18 West wall profile, Test Unit 7, 5EP2524.

- Stratum 2 This is a 15 to 18 cm thick stratum of a very dark grayish brown (10 YR 3/2) sandy loam with silt. The silt content increases over the upper A horizon (Stratum 3). The pedogenic structure is weak, subangular blocky to prismatic. The lower boundary is clear. The sediments are hard to very hard, especially when dry. Bioturbation is evident in the form of roots, and there is evidence for bioturbation from fossorial animals - ants in particular. Gravel accounts for about 20% of the matrix. The gravel size increases to cobble size toward the bottom of the unit. This B to Bk horizon reacts violently to hydrochloric acid. No artifacts were recovered from this stratum.
- Stratum 3 This is the A soil horizon. It consists of a thick mat of rootlets from blue grama grass. This stratum ranges from 6 to 7 cm thick. It is a dark grayish brown (10 YR 4/2) to very dark grayish brown (10 YR 3/2) sandy loam. The structure is granular to weak angular blocky. The lower boundary is abrupt. Mottling is slight and bioturbation is evident in the form of soil homogenization from rootlets and ants. The percentage of gravel estimated for the stratum is about 5%. The sediments are loose and easy to excavate. There is a

strong reaction with hydrochloric acid. Historic artifacts occur in this stratum.

Three pieces of green-bottle glass and one rifle casing (discarded) were recovered from Level 1. The buried glass fragments are the same as other fragments found at the surface, and which belong to the same bottle. The waterscreen samples and the remainder of the levels contained no artifacts. The possibility for buried cultural deposits at this location is good due to the depth of sediments. The surface manifestation of a prehistoric component, however, is minimal. Test excavation to a depth of 40 cm failed to define either a prehistoric or ethnostratigraphic historic horizon.

Test Unit 8

Test Unit 8 was placed between two surface artifacts and Feature 1 (Figure 7.2). The geomorphology of this area indicated that it may have a good potential for subsurface deposits, and no glacial outwash cobbles were exposed on the surface. A total of seven levels was excavated in the unit (Table 7.8). The waterscreen samples were taken from the northwest corner. Gravel were encountered throughout excavations, but larger cobbles begin to appear by Level 6. Excavations were terminated at 72 cm below surface because of the nearly continuous layer of cobbles and boulders.

Table 7.8. Results of Test Unit 8, 5EP2524.

Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
		1/4"	waterscreen
1	10	No artifacts	No artifacts
2	20	No artifacts	No artifacts
3	30	No artifacts	No artifacts
4	40	No artifacts	No artifacts
5	50	chopper fragment, charcoal	3 flakes
6	60	No artifacts, charcoal	Charcoal
7	72	0	No artifacts

The north and east walls were cleaned, photographed, and profiled. A cross-section profile of the north wall is provided (Figure 7.19). Three strata were defined in the unit, and these are described below.

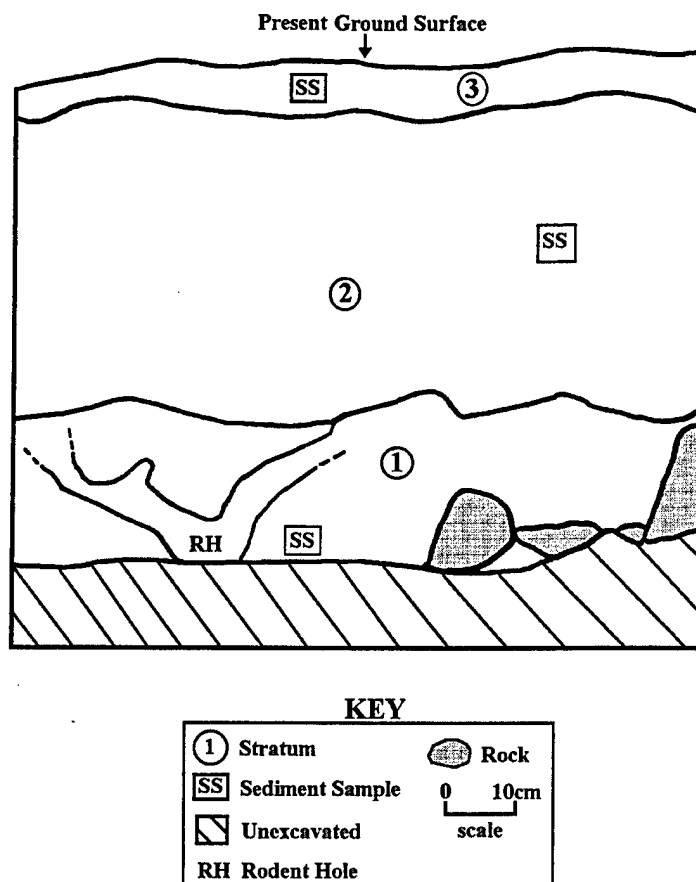


Figure 7.19 North wall profile, Test Unit 8, 5EP2524.

Stratigraphy Test Unit 8

Stratum 1 This stratum is a very dark grayish brown (10YR 3/2) sandy loam. It has a massive-to single- grain structure with heavy bioturbation. The unit was excavated for 30 cm before excavation was halted, leaving the lower boundary concealed. It is estimated that between 50 and 75% of the stratum is comprised of gravel and larger clasts; however, the clasts are slightly sorted with size increasing from smaller to larger with depth in the stratum. The heavy mottling is the result of bioturbation from semi-fossorial animals. Soil homogenization could also exist from smaller, fossorial

- varieties (e.g., ants). A charcoal sample was collected from the interface between Stratum 1 and 2. Artifacts were recovered from this interface as well (possible ethnostratigraphic unit). Sediments appear more alluvial than in other units. Sediments react with hydrochloric acid; violent reaction occurs in places throughout the unit. This stratum represents a Bk to Crk soil horizon with a possible ethnostratigraphic (cultural) horizon near the top.
- Stratum 2 This stratum consists of an overthickened A horizon that grades into a B soil horizon. It is very dark grayish brown (10YR 3/2), and the texture is a sandy loam with silt. The structure is weak, subangular blocky. The lower boundary is clear. Average thickness for the stratum in this unit is 37 cm. The sand (quartz, biotite, feldspar) is coarse and subangular to subrounded. Pebbles and a few cobbles make up about 10% of the matrix. Clast size increases over Stratum 3, but the overall percentage remains the same. Artifacts were found at the interface with Stratum 1. The sediments react slightly with hydrochloric acid. This stratum represents a B soil horizon with increasing CaCO₃ near the lower boundary.
- Stratum 3 This stratum is a very dark brown (7.5YR 3/2) sandy loam. Structure is massive to single grain. The sand (quartz, biotite, feldspar) is coarse and subangular to subrounded. Gravel (pebbles and a few cobbles) is estimated to comprise about 10 percent of the matrix. There was a reaction with hydrochloric acid. Artifacts were not recovered from the unit. The boundary with Stratum 2 is abrupt. Stratum 3 represents the A soil horizon.

A flaked-lithic tool, a sandstone chopper fragment, and a small amount of charcoal were recovered in the field from Level 5 (Table 7.8). A small amount of charcoal was also collected from Level 6. The waterscreen samples, when processed, yielded three flaked-lithic artifacts (Level 5) and a small amount of charcoal (Level 6). The three flaked-lithic artifacts (one brown chert broken flake, one red chert flake fragment, and one gray quartzite broken flake) are small and would not have been retained in the ¼ in. screen. A wood charcoal sample collected from Level 5 in Test Unit 8 was submitted for radiocarbon AMS dating. A radiocarbon age of 570 ± 50 B.P. (Beta -104298) was obtained on this sample (Appendix II). For the age 570 ± 50 B.P. two calibrated age ranges are possible at the 68% probability, cal A.D. 1315 to 1345 and cal A.D. 1390 to 1420, and there is a 95% probability that the calibrated age falls between cal A.D. 1300 and 1435. If this date is correct, and if it is associated with a buried ethnostratigraphic horizon, this horizon is associated with the Middle Ceramic Period of eastern Colorado (Eighmy 1984; Zier et al. 1987).

Test Unit 9

Test Unit 9 was placed near two chert flakes on the surface (Figure 7.2). The unit was excavated to determine the potential for subsurface archeological deposits in this area of the site since two artifacts on the surface suggested the possibility of artifacts in the subsurface. Five levels were excavated in the unit (Table 7.9). A large boulder was encountered in Level 4, which restricted excavations to the south half of the unit in Level 5. The waterscreen sample was taken in the northwest corner of the unit for the first three levels. The waterscreen sample in Level 4 was obtained from the northeast corner and from the southwest corner in Level 5.

Table 7.9. Results of Test Unit 9, 5EP2524.

Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
		1/4"	waterscreen
1	10	No artifacts	No artifacts
2	20	No artifacts	No artifacts
3	30	No artifacts	2 flakes
4	40	No artifacts	No artifacts
5	44	No artifacts	No artifacts

Test Unit 9 was placed in an open area and displays characteristics similar to those observed in Test Unit 1 and Test Unit 8, which are also in the open. The strata are very similar to the strata from these two units. The north and west walls were cleaned, photographed, and profiled. A cross-section profile of the north wall is provided (Figure 7.20). Three strata were defined in the unit, and these strata are described below.

Stratigraphy Test Unit 9

Stratum 1 This stratum is a brown to dark brown (7.5YR 4/3) sandy loam with coarse silt. It is massive to single grain in texture and moderately mottled. Clast size increases in the unit over the previous strata. Clasts are angular to subangular. Material types include granite, diorite, feldspar, quartz, and sandstone. Some bioturbation is evident. The sediments produced a moderate reaction with hydrochloric acid. The

lower boundary is concealed. This stratum represents the lower B soil horizon. Two artifacts were collected from either the top of Stratum 1 or the bottom of Stratum 2.

Stratum 2 This stratum is a dark brown (10YR 3/3) sandy loam. The lower boundary is abrupt to clear. Structure is weak, angular blocky. Sand size increases over Stratum 3. It is loose and friable and easy to excavate. Structure is granular to weak blocky. Angular to subrounded gravel (10%) are distributed evenly over the unit. This stratum is a 2B soil horizon. It is moderately mottled, has roots, and some bioturbation. The stratum reacts slightly with hydrochloric acid. Two artifacts were collected from either the top of Stratum 1 or the bottom of Stratum 2.

Stratum 3 This is the upper soil horizon (A). This horizon ranges from 9 to 14 cm thick. It consists of a very dark gray (10 YR 3/3) to a very dark grayish brown (10 YR 3/2) sandy loam with silt. It is loose and friable with clasts of angular to subrounded granite (10%) throughout the stratum. The texture is single grain to massive. It is slightly mottled and does not react with hydrochloric acid. The lower boundary is abrupt. Rootlets and bioturbation were noticed in the stratum. Artifacts were not recovered from this stratum.

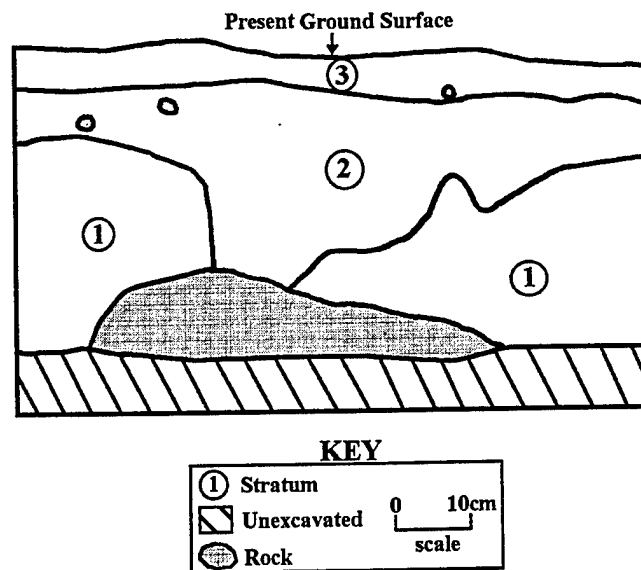


Figure 7.20 North wall profile, Test Unit 9, 5EP2524.

Two flaked-lithic artifacts were recovered from the waterscreen sample from Level 3. Both artifacts would not have been retained by a ¼ in. screen. These two artifacts include one white chert flake fragment and one brown quartzite broken flake. Both artifacts were

recovered from Stratum 2, a 2B soil horizon. Although subtle, there is some indication that a cultural horizon is present in the unit.

Tests Unit 10 and Test Unit 11

Test Units 10 and 11 were excavated as a 0.5 m trench across Feature 11 (Figure 7.2). Feature 11 is located along the south edge of the site next to Feature 15 and is an isolated, contiguous-rock enclosure near the terrace edge (Figure 7.21). The feature is currently sheltered under several trees. Due to the partial nature of the feature, dimensions are difficult to determine.

The outside diameter of the feature is 4.4 m x 3.6 m, and the interior measures roughly 2.4 m x 2.4 m. The rock outline incorporates naturally embedded bedrock boulders and a single course of cobble- to boulder-sized rock. Exposed bedrock boulders occur in the vicinity particularly on the west side of the feature. The closest flaked-lithic artifact is 25 meters to the northwest. A rifle casing was found adjacent to the feature.

Test Unit 10 was placed on the feature's exterior, and Test Unit 11 was placed within the interior. Three levels were removed in Test Unit 10 and five levels in Test Unit 11 (Table 7.10). Levels 4 and 5 in Test Unit 11 were excavated in those areas of the unit that were free of rock. Excavation ceased when the bedrock boulders prevented continued excavation. The waterscreen sample locations had to be moved several times to obtain a sufficient sample.

Table 7.10. Results of Test Units 10 and 11, 5EP2524.

Test Unit No.	Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
			1/4"	waterscreen
10	1	10	No artifacts	No artifacts
10	2	20	No artifacts	No artifacts
10	3	28	No artifacts	No artifacts
11	1	10	No artifacts	No artifacts
11	2	20	No artifacts	No artifacts
11	3	30	No artifacts	No artifacts
11	4	40	No artifacts	No artifacts
11	5	48	No artifacts	No artifacts

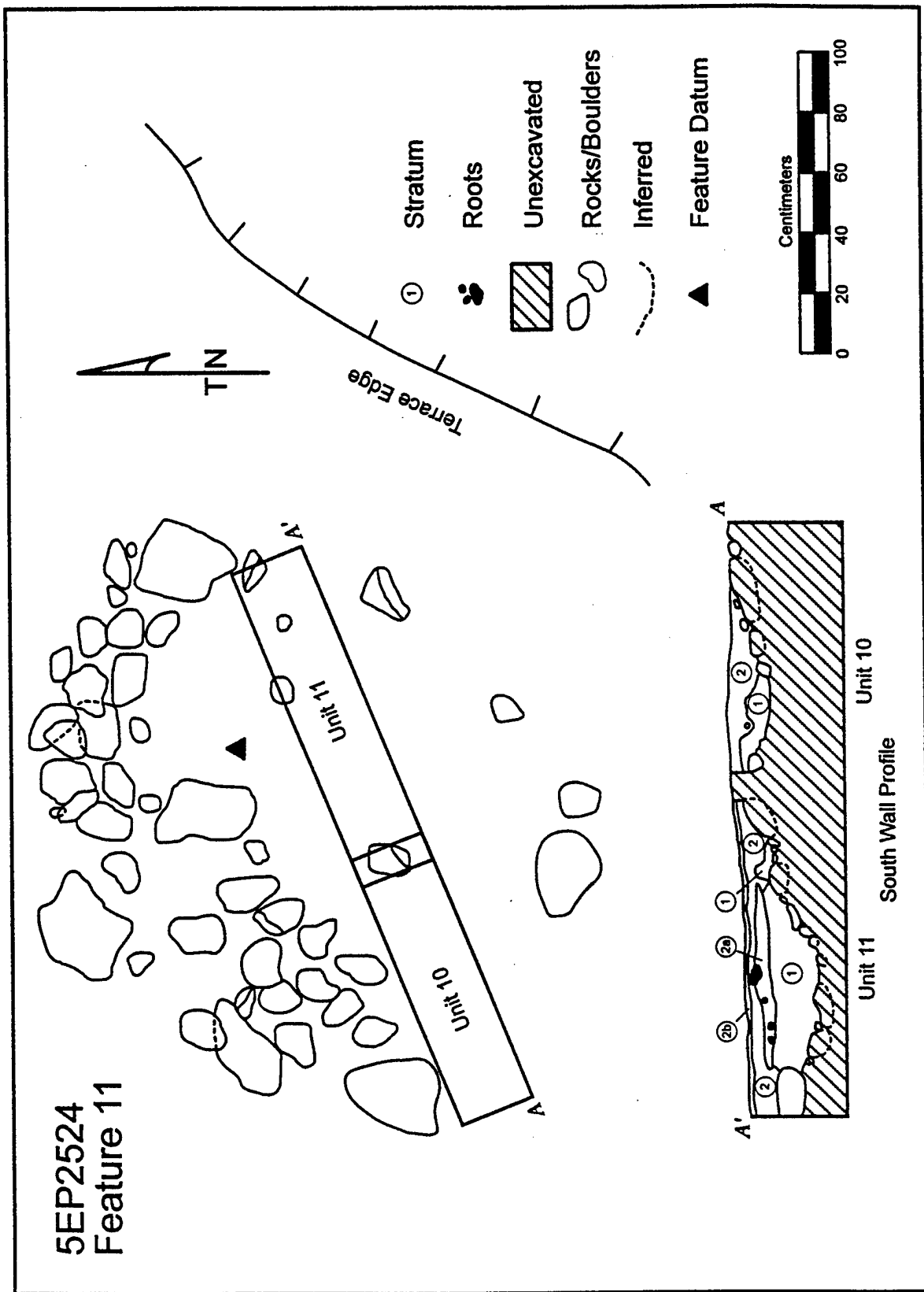


Figure 7.21 Plan view and south wall profile, Test Units 10 and 11, Feature 11, 5EP2524.

The south and east walls were cleaned, photographed, and profiled. A cross-section profile of the south wall is illustrated (Figure 7.21). Four strata were defined in the trench, and these strata are described below.

Stratigraphy Test Unit 10

- Stratum 1 This stratum consists of a yellowish brown (10YR 5/4) sandy loam with silt. It is angular blocky in structure, and the lower boundary is abrupt with underlying Pleistocene cobbles and boulders. Over the entire stratum, cobbles and pebbles make up between 20 and 30% of the stratum. The clasts are mostly igneous with some sandstone. They are subangular to subrounded, jumbled, and display slight imbrication. The stratum is heavily mottled and reacts strongly to violently with hydrochloric acid. Reaction to hydrochloric acid decreases with depth in the stratum. This is the Bk horizon grading to the Ckr horizon. The stratum is primarily the result of *in situ* weathering. The sand grains are biotite, feldspar, muscovite, and quartz. No artifacts were recovered from this stratum.
- Stratum 2a This is the elluvial horizon that has leached from the root zone and found only in Test Unit 10 (exterior). It is a brown (10YR 5/3) silt loam with sand that increases in size with depth in the unit. The stratum is 5 - 6 cm thick. The soil development here is platy. The stratum is more of a lens than a stratum. The lower boundary is clear to abrupt. The mottling is moderate, and the reaction with hydrochloric acid is heavy. Pebbles and cobbles comprise about 5% of the matrix. No artifacts were found in the stratum.
- Stratum 2 This is the A soil horizon. It is the upper 2-3 cm of silt loam with sand. The structure is weak- to moderate- subangular blocky. The lower boundary is abrupt and wavy. Mottling is slight, and the reaction with hydrochloric acid is heavy. The reaction is heaviest at the lowest position in the stratum. It is soft and easy to excavate. About 5% of the matrix consists of pebbles and cobbles. No artifacts were found in the stratum.
- Stratum 2b This is a thin (2 - 3 cm) layer (AO) of slightly decayed organic matter. Historic military debris was found in this stratum.

The only artifacts recovered from the excavation were a rifle casing in Level 1 of Test Unit 10 and four military cartridge clips from Level 1 in Test Unit 11. These items were not collected. Sediments from the features's interior (Test Unit 11) were not as gravelly as those from the feature's exterior (Test Unit 10), and this suggests that the interior may have been

dug out. The lack of prehistoric artifacts along with recent soil development in the upper strata support the assumption that the feature is of recent military origin.

Test Unit 12

Test Unit 12 was placed along the terrace edge in the eastern portion of the site (Figure 7.3). Four levels were excavated in the unit (Table 7.11). Pebble- to cobble-sized gravel were encountered throughout. The gravel are highly weathered in the lower levels. The waterscreen sample was taken from the northwest corner of each level.

Table 7.11. Results of Test Unit 12, 5EP2524.

Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
		1/4"	waterscreen
1	10	No artifacts	No artifacts
2	20	No artifacts	No artifacts
3	30	No artifacts	No artifacts
4	40	No artifacts	1 flake

The north and east walls were cleaned, photographed, and profiled. Four strata were defined in the unit and are described below. Figure 7.22 in an illustration of the cross-section profile of the east wall.

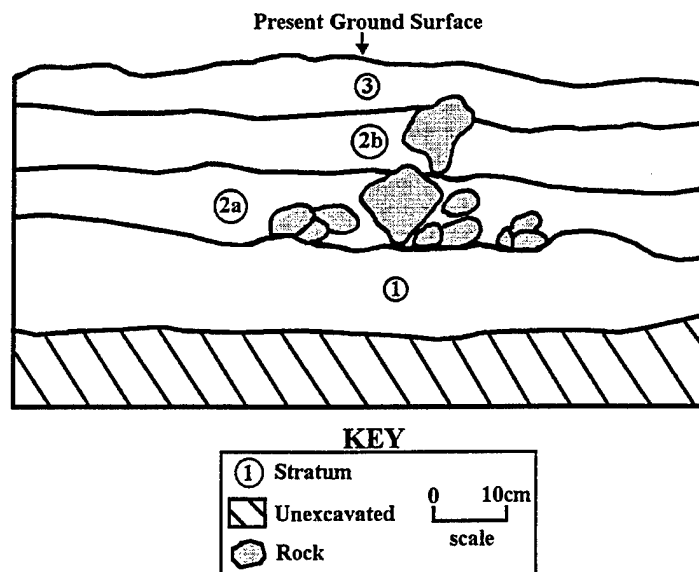


Figure 7.22 East wall profile, Test Unit 12, 5EP2524.

Stratigraphy Test Unit 12

- Stratum 1 This stratum represents the Crk horizon of weathered Pleistocene rock (diorite, granite, sandstone). This stratum is 30 to 50% cobbles and pebbles with a few boulders. Soil is a sandy loam with granular structure. The stratum is brown (10YR 5/1). Reaction to hydrochloric acid is strong to violent with the strongest reaction at the interface between Stratum 1 and Stratum 2a. CaCO₃ was noted on the underside of the rock. One prehistoric artifact was recovered from this stratum. The lower boundary is concealed.
- Stratum 2a Stratum 2 is a dark grayish brown (10YR 5/2) sandy loam with silt. The structure is weak angular blocky with small peds. The lower boundary is clear. The stratum reacts with hydrochloric acid. This reaction increases at the contact with the underlying stratum. There is slight mottling noted in the profile. This is a Bk soil horizon. This stratum is an accumulation of subangular to subrounded alluvial pebbles and cobbles, and calcium carbonate.
- Stratum 2b This is a dark grayish brown (10YR 4/2) silt loam with sand. The structure is weakly developed, angular blocky. The lower boundary is clear. There is a slight reaction with hydrochloric acid. This stratum exhibits slight mottling. This stratum is the A horizon. It contains an estimated 10% gravel. No artifacts were recovered from this stratum.
- Stratum 3 Stratum 3 is a dark grayish brown (10YR 4/2) sandy loam with silt. The structure is granular. The lower boundary is abrupt. There is no mottling and a very slight reaction with hydrochloric acid. Gravel accounts for about 5 percent of the matrix. This is the A to AO horizon. No artifacts were recovered from this stratum.

One piece of black rubber, one piece of charcoal, and several military rifle casings were noted on the surface of the unit. One flaked-lithic artifact, a piece of white chert debris, was recovered from the waterscreen sample in Level 4. The artifact would have been retained in a ¼ in. screen size. Although the profile exhibited slight evidence for bioturbation, during excavation extensive disturbance to the sediments was observed. The stratum containing the artifact is distinct from the stratum above, nonetheless, with only one artifact, a piece of debris, it is presumptuous to propose a buried cultural horizon at this location.

Test Unit 13 and Test Unit 14

Test Units 13 and 14 (Figure 7.23) were excavated as a 0.5 m trench across Feature 17 (Figure 7.2), which is located approximately 14 m north of the terrace edge in the

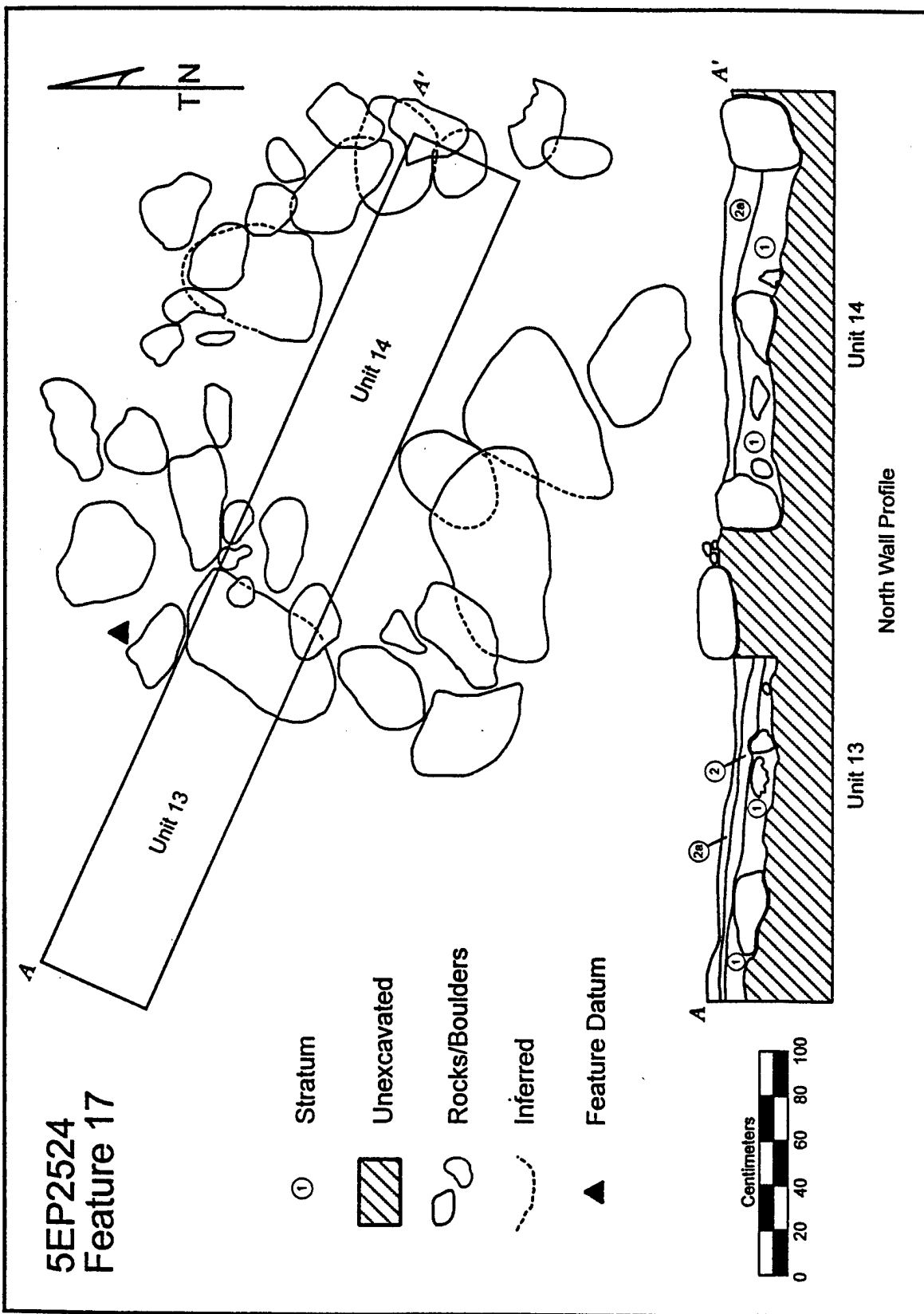


Figure 7.23 Plan view and north wall profile, Test Units 13 and 14, Feature 17, 5EP2524.

southeastern corner of the site. The feature is sheltered by piñon and juniper trees. Feature 17 is an isolated, contiguous-rock structure (Lintz and Anderson 1989:92). The rock outline forms a nearly full enclosure. Naturally occurring Pleistocene boulders are incorporated into the outline. Two courses of stacked rock are visible in a few places along the wall. Often the second course simply leans up against the first. The outline of the feature is open to the southeast. The outside diameter is 3 m x 1.2 m, and the inside diameter is roughly 1.9 m x 1.2 m. Other naturally occurring Pleistocene rocks are present in the immediate vicinity of the feature. Some larger rocks in the feature appear to have been rolled into place. A k-rat can lid was found on the surface of the feature.

Test Unit 13 was excavated on the exterior of Feature 17 while Test Unit 14 was placed within the interior. Four levels were excavated in Test Unit 13, and three levels were excavated in Test Unit 14 (Table 7.12). No waterscreen sample was taken from Level 1 in Test Unit 13 because it consisted of a partial level. The waterscreen samples for the remainder of the levels was taken from the northeast corner of the unit. The waterscreen samples for Test Unit 14 were taken from the northwest corner of the unit for the first two levels. The sample from Level 3 was taken from the northeast corner because the northwest corner had too many rocks. Both units ended at the natural cobble pavement. No artifacts were recovered during excavation of Test Unit 13. A small amount of charcoal was recovered from the waterscreen sample from Level 2. This small sample came from near the surface and is of recent origin.

Table 7.12. Results of Test Units 13 and 14, 5EP2524.

Test Unit No.	Level No.	Depth (cm BGS)	Material Recovered (Screen Size)	
			1/4"	waterscreen
13	1	10	No artifacts	No artifacts
13	2	20	No artifacts	No artifacts
13	3	30	No artifacts	No artifacts
13	4	33	No artifacts	No artifacts
14	1	10	No artifacts	No artifacts
14	2	20	No artifacts	No artifacts
14	3	28	No artifacts	No artifacts

The east and north walls were cleaned, photographed, and profiled. Three strata were defined in the trench and are described below. These strata are identified in the cross-section profile drawing of the east wall (Figure 7.23)

Stratigraphy Test Unit 13 and Test Unit 14

- Stratum 1 Stratum 1 is a dark brown (10YR 3/3) sand loam. It ranges from 3 to 7 cm thick in the two units. The lower boundary, however, is concealed. About 50% of the matrix is gravel (cobbles to pebbles). There is slight mottling, probably from floralturbation. There was no reaction with hydrochloric acid. This is the B to Cr soil horizon. No artifacts were recovered from the stratum.
- Stratum 2 This stratum is a dark brown (7.5YR 3/2) silt loam with sand. It possesses a weak, angular blocky, soil structure. The lower boundary is clear. Gravel accounts for about 5% of the loamy matrix. The obvious floralturbation (roots) gives the unit its mottled appearance. There is no reaction with hydrochloric acid. This is the A soil horizon with a zone of roots and decayed organic matter. It is 11 to 14 cm thick. No artifacts were recovered from this stratum.
- Stratum 2a This thin (2-4 cm) layer of undecayed organic matter is very dark grayish brown (10YR 3/2) and possesses no soil structure. This is the AO horizon. The lower boundary is abrupt. Military debris was present from this stratum in the feature's interior.

One pull ring and a small metal spring were recovered from Level 1 in Test Unit 14. Level 2 produced one can lid and three Pepsi cans. The three Pepsi cans had pull-tab openings, and they post-date 1965 (Dolphin 1977). These artifacts were discarded. This structure has every indication (stratigraphic as well as artifactual) that it is of recent military origin.

Test Unit 15, Test Unit 16, and Test Unit 17

Test Units 15, 16, and 17 were excavated on the eastern edge of the site directly adjacent to a beveled chalcedony scraper found on the surface. The intent of Test Unit 15 was to determine if subsurface deposits existed in the area. The excavation of Test Units 16 and 17 were a direct result of the discovery of buried prehistoric artifacts in Test Unit 15. The three units form an L-shape (Figure 7.24). Test Units 15 and 16 were excavated in arbitrary levels, and Test Unit 17 was excavated in stratigraphic layers (Table 7.13). Test Unit 15 as the deepest unit with six levels being removed. Five levels were removed in each of the other two units. A total of fifty-eight artifacts (Table 7.14) was recovered from these

Table 7.13. Results of Test Units 15, 16, and 17, 5EP2524.

Test Unit No.	Layer No.	Level No.	Depth (cm BGS)	Materials Recovered (Screen Size)	
				¼"	Waterscreen
15	NA	1	10	1 retouched flake	0
15	NA	2	20	4 flakes, 1 retouched flake	6 flakes, 1 utilized flake
15	NA	3	30	1 flake	6 flakes
15	NA	4	40	1 flake	1 flake
15	NA	5	50	0	0
15	NA	6	62	0	0
16	NA	1	10	1 flake	No artifacts
16	NA	2	20	1 flake	1 flake
16	NA	3	30	8 flakes	No artifacts
16	NA	4	40	No artifacts	No artifacts
16	NA	5	52	No artifacts	No artifacts
17	1	1	5	No artifacts	No artifacts
17	2	1	15	4 flakes	No artifacts
17	2	2	22	7 flakes, charcoal	4 flakes
17	3	1	32	2 flakes, 1 possible groundstone	6 flakes
17	3	2	42	1 flake	No artifacts

Table 7.14. Nontool Flaked-Lithic Debitage from Test Units 15, 16, and 17.

Test Unit No.	Layer	Level	Screen Size		Flake Type*	Material Type
			¼"	⅛"		
15	NA	2	x		2	Red brown quartzite
15	NA	2	x		2	Red brown quartzite
15	NA	2	x		2	Yellow brown silicified wood
15	NA	2	x		3	White chert
15	NA	2		x	1	Quartz
15	NA	2		x	2	White chert
15	NA	2		x	3	Quartz
15	NA	2		x	3	Quartz
15	NA	2		x	3	Quartz
15	NA	2		x	3	Red brown quartzite
15	NA	3	x		3	Yellow brown silicified wood
15	NA	3		x	3	Quartz
15	NA	3		x	3	White chert
15	NA	3		x	3	White chert
15	NA	3		x	4	Quartz
15	NA	3		x	4	Quartz
15	NA	3		x	4	Red brown quartzite
15	NA	4	x		1	Red brown quartzite
15	NA	4		x	4	White chert
16	NA	1	x		2	White chert
16	NA	2	x		1	Red brown quartzite

Test Unit No.	Layer	Level	Screen Size		Flake Type*	Material Type
				x		
16	NA	2		x	2	Quartz
16	NA	3	x		1	White chert
16	NA	3	x		1	Chalcedony
16	NA	3	x		1	Red chert
16	NA	3	x		2	White chert
16	NA	3	x		2	Brown chert
16	NA	3	x		3	Yellow brown silicified wood
16	NA	3	x		4	Quartz
16	NA	3	x		4	Black chert
17	2	1	x		2	Yellow brown silicified wood
17	2	1	x		3	Yellow brown silicified wood
17	2	1	x		3	Yellow brown silicified wood
17	2	1	x		3	Quartz
17	2	2	x		1	Quartz
17	2	2	x		1	White chert
17	2	2	x		2	Red brown chert
17	2	2	x		2	White chert
17	2	2	x		3	Quartz
17	2	2	x		4	Quartz
17	2	2	x		4	Quartz
17	2	2		x	2	White chert
17	2	2		x	4	Quartz
17	2	2		x	4	Quartz
17	2	2		x	4	Red brown quartzite
17	3	1	x		3	Quartz

Test Unit No.	Layer	Level	Screen Size		Flake Type*	Material Type
			x			
17	3	1	x		3	Quartz
17	3	1	x		3	Quartz
17	3	1		x	1	Red chert
17	3	1		x	2	White chert
17	3	1		x	3	White chert
17	3	1		x	4	White chert
17	3	1		x	4	Quartz
17	3	1		x	4	Quartz
17	3	2	x		4	Red brown quartzite

Flake Type: 1 = complete flake, 2 = broken flake, 3 = flake fragment, 4 = debris



Figure 7.24 Photograph of Test Units 15, 16, 17, 5EP2524. View is to the east.

three units; these include 55 nontool-flaked debitage, three tools, and a possible sandstone metate. One utilized chalcedony flake with bimarginal use wear, and two brown chert flakes with unimarginal retouching and bimarginal use wear comprise the tool assemblage. One small fleck of charcoal was collected but was not processed. Thirteen of the twenty-five artifacts retained from the waterscreen sample would have passed through a $\frac{1}{4}$ in. wire mesh. The last two levels in Test Units 15 and 16 were culturally sterile. Test Unit 17 had one artifact, a piece of red-brown quartzite debris, in the last level.

The north and east walls of Test Unit 15, the north and west walls of Test Unit 16, and the north and east walls of Test Unit 17 were cleaned, photographed, and profiled. Five strata were defined in these units and are described below. Figures 7.25 and 7.26 are cross-section profiles of the east wall of Test Units 15 and 17 and the north wall of Test Units 16 and 17.

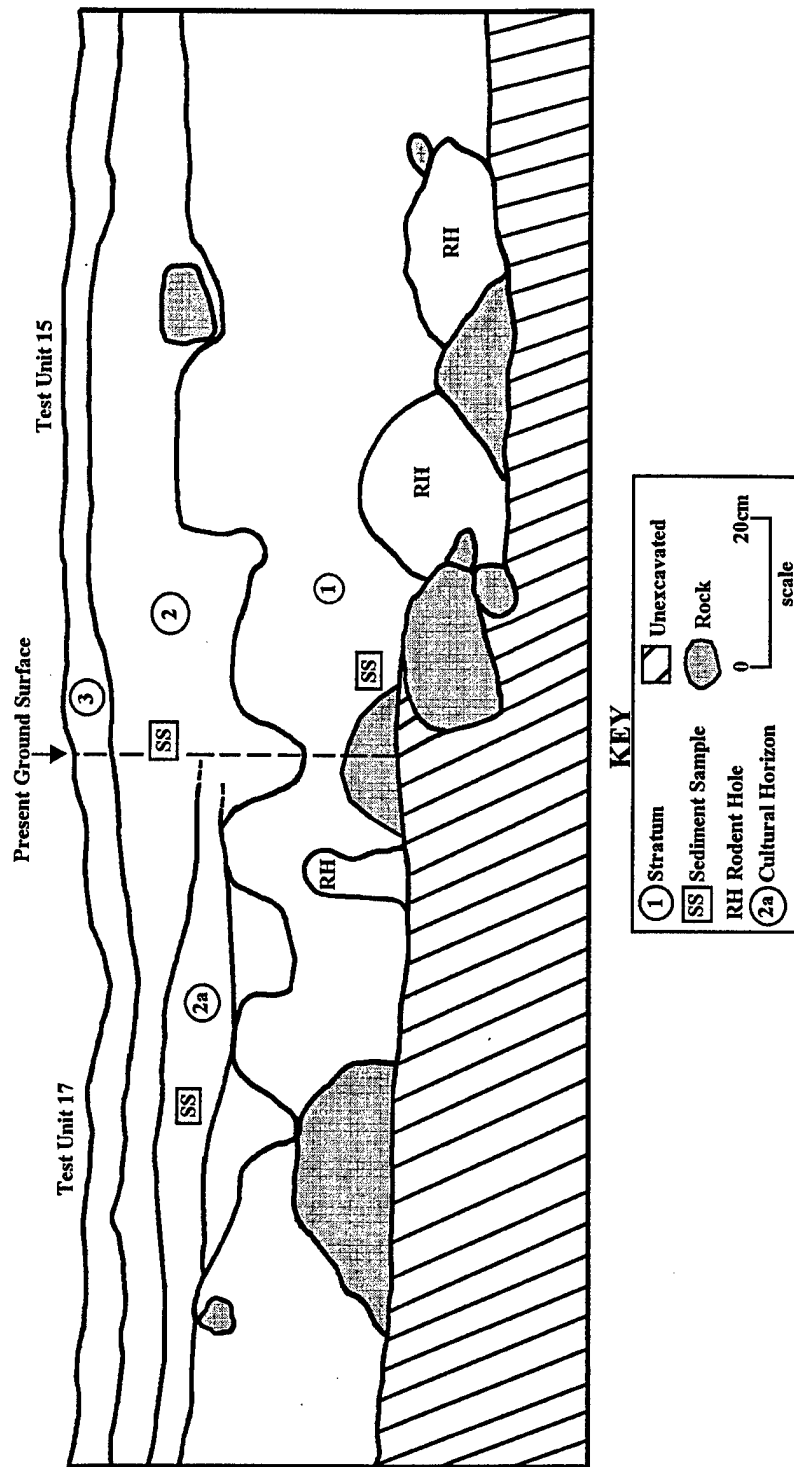


Figure 7.25 East wall profile, Test Units 15 and 17, 5EP2524

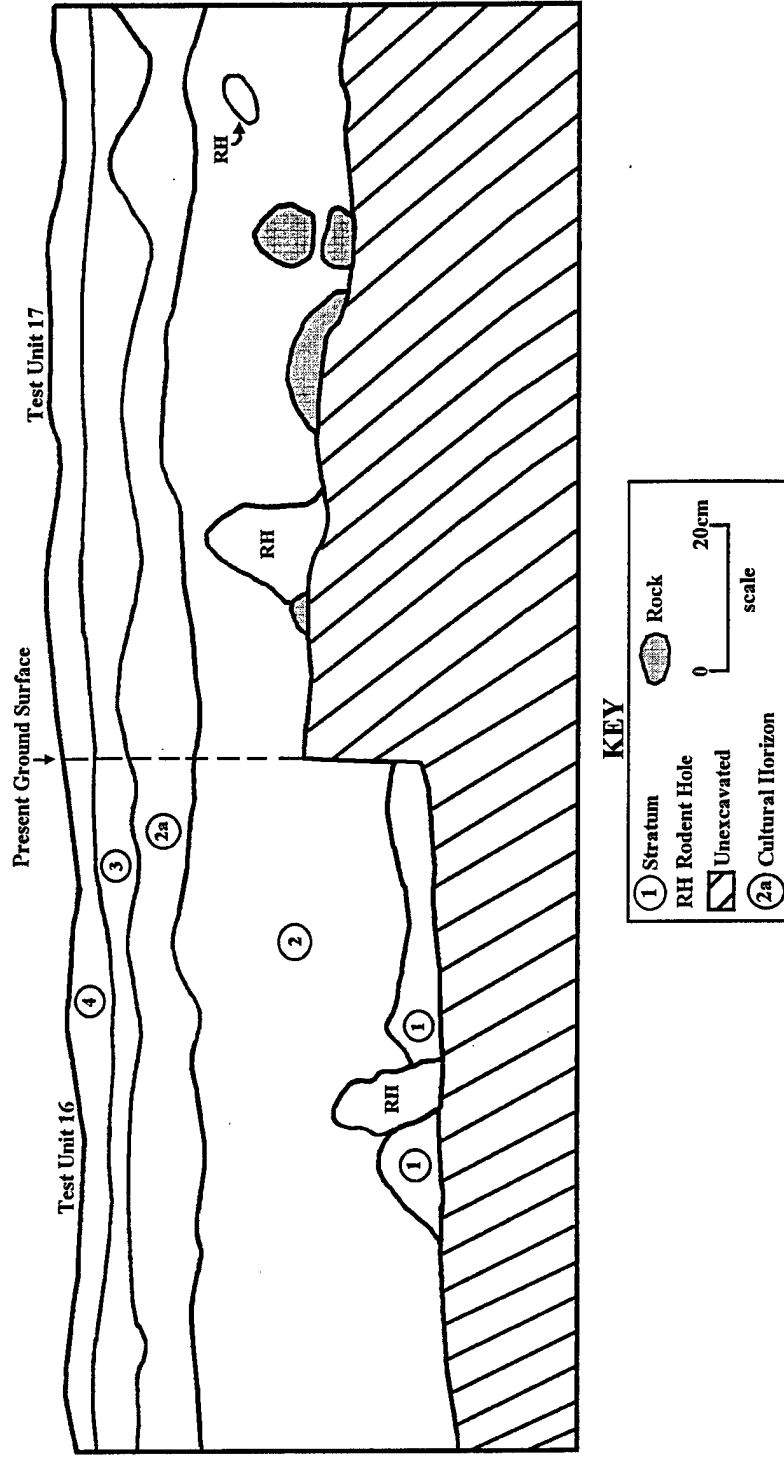


Figure 7.26 North wall profile, Test Units 16 and 17, 5EP2524

Stratigraphy Test Unit 15 and Test Unit 17

- Stratum 1 This stratum is a B soil horizon. It is a dark yellowish brown (10YR 3/4 to 10YR 3/6) coarse sandy loam. The soil structure is angular blocky with larger, better-developed peds than any unit at the site. The lower boundary is concealed, but 30 cm of the stratum were excavated before the testing was concluded. Bioturbation increases in the stratum from that of the above strata, giving the stratum a fairly heavy mottled appearance. At the very bottom of the unit, the C horizon begins to appear where there is a slight reaction with hydrochloric acid. Sediments are loose and easy to excavate. Pebbles, cobbles, and boulders make up about 20% of the stratum. These are poorly sorted. Artifacts are found at the interface with overlying Stratum 2a.
- Stratum 2a This stratum is a discontinuous lens of dark brown (10YR 4/3) sand loam to loamy sand with silt. The soil structure is angular blocky. The lower boundary is clear and flat. Mottling is slight, and there is no reaction with hydrochloric acid. Cobbles of different sizes—some are subangular—make up about 15% of the matrix. The sediments are hard and more difficult to excavate. Artifacts are plentiful in this stratum which is interpreted to be a cultural horizon.
- Stratum 2 This is a dark yellowish brown (10YR 3/4) sandy loam with silt. The peds are small, angular blocky and weak but better developed than Stratum 2a. Stratum 2 is a B soil horizon. Grain size increases with depth in this unit. There was no reaction with hydrochloric acid in this unit. The stratum is slightly hard to hard, especially when dry. Artifacts occur in this stratum.
- Stratum 3 This A soil horizon consists of a dark yellowish brown (10YR 4/3 to 10YR 4/4) sandy loam with silt. The soil structure is weak with small angular blocky peds. The lower boundary is sharp and flat. Mottling is slight, and there is no reaction with hydrochloric acid. There may be some eolian silt in this stratum. Less than 10% of the matrix is gravel. Few artifacts were recovered from Stratum 3.

Based solely on artifact density, a possible cultural horizon exists between 20 and 30 cm below the present ground surface in these three units. We were unable to isolate this horizon in the stratigraphic profile, however.. We noted a stratigraphic break around 20 cm below ground surface (Stratum 2a Test Units 16 and 17), and we interpreted this stratum as a possible cultural horizon. Although Test Unit 17 was excavated in stratigraphic layers, this subtle horizon (Stratum 2a) was recognized in the cross-section only and not excavated

separately. This interpreted cultural horizon is discontinuous across the units and fairly heavily bioturbated. The position of these test units along the slope suggested that the artifacts may be displaced and not situated on a use surface. Features were not recognized in the cultural horizon, which contained only small amounts of charcoal. Because the units are on a slope, it is probable that some artifacts have migrated downslope. Moreover, it is likely that Stratum 2a is an ethnostratigraphic unit, and that the artifacts are primarily concentrated at the top of the 20 to 30 cm level along the slope. The procedures for conducting evaluative testing (Dean 1992:IV-22) recommend 10 cm levels within stratigraphic layers (when visible), which was done at this site. However, this vertical control was not sufficient to isolate this suggested cultural horizon during excavation.

Laboratory Analysis

Most of the surface artifacts from 5EP2524 are fragments of historic bottle glass and are concentrated near Feature 15. The glass is clear, dark olive green, and solarized purple and represents glass from at least three bottles. The solarized glass predates WWI and the military ownership of the area. The artifacts are most likely related to a historic trail (Feature 14) that passes through the site. The presence of at least four pieces of dark green glass that have been intentionally worked suggests that the glass had been prepared for scraping or cutting activities. The remainder of the surface historic artifacts consists of several pieces of nondiagnostic white earthenware, probably from a single plate or cup.

The surface prehistoric assemblage consists of a sparse scatter (one artifact per 1400 m²) with only 14 total artifacts observed. The assemblage consists of one chalcedony scraper, five utilized chert flakes, and eight pieces of nontool lithic debitage (five chert debris, 2 chert flake fragments, and 1 orthoquartzite broken flake). The chalcedony scraper is represented in Figure 7.27. End scrapers such as this one are reasonably from Plains Woodland complexes and are not diagnostic (Gunnerson 1987:41).

The subsurface assemblage contrasts with the surface assemblage in that prehistoric artifacts dominate. Four pieces of clear bottle glass account for all of the recovered historic artifacts. All of the glass was found in the upper levels of Test Unit 6 and Test Unit 7. Three of the four pieces were recovered from Test Unit 7 and within the historic artifact concentration. The other glass artifact was found in Test Unit 6. This unit was next to Feature 1. Seventy-five prehistoric artifacts were recovered from test excavations and shovel testing. The artifacts include one broken chert biface, one sandstone chopper fragment, three utilized flakes (1 chert, 1 chalcedony, 1 quartzite), two retouched chert flakes, one possible metate, and sixty-seven pieces of nontool flaked-lithic debitage (Table 7.15). The chopper fragment has flakes removed and evidence of use wear (Figure 7.28), and was found in Level 5, Test Unit 8 at a depth between 40 - 50 cm.



Figure 7.27 Chalcedony scraper collected from the surface, 5EP2524.

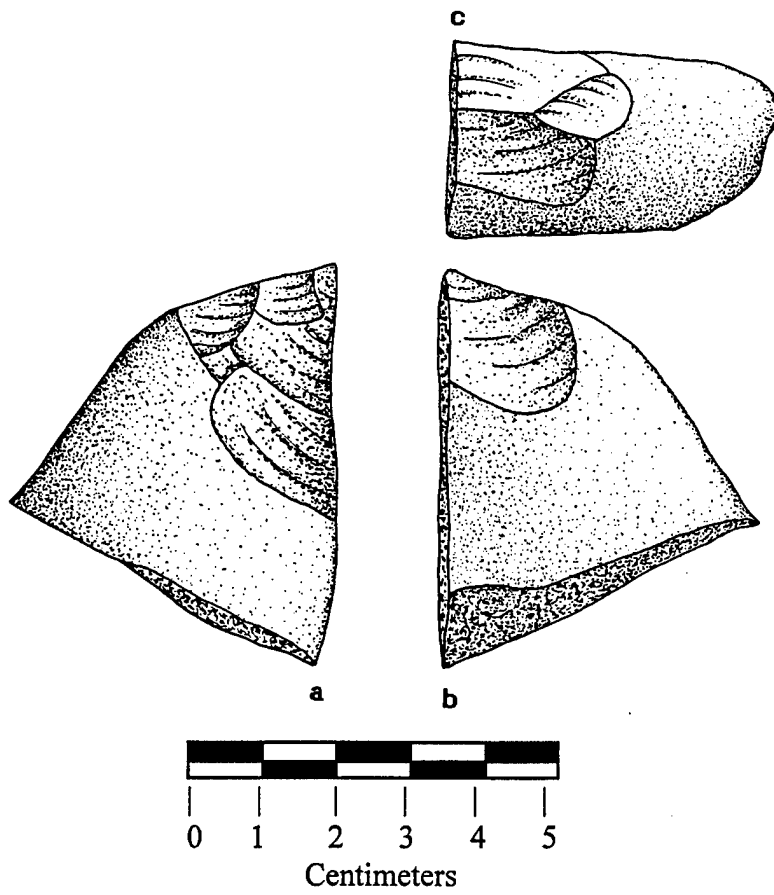


Figure 7.28 Sandstone chopper fragment, Level 5, Test Unit 8, 5EP2524.
Views a and b are obverse; View c is a plan view.

Attributes of all nontool flaked-lithic debitage were examined in the field and laboratory using methods outlined in Sullivan and Rosen (1985). Subsurface and collected surface artifacts were also subjected to the standardized recording and analysis of methods addressed in the PCMS manual (Dean 1992).

A total of seventy-five pieces of nontool flaked-lithic debitage was analyzed using the debitage categories established by Sullivan and Rosen (1985). Results of this analysis are presented in Table 7.16.

Table 7.15. Subsurface Nontool Flaked-Lithic Debitage Assemblage, 5EP2524

Material Type					Flake Type	Total (%)
Chert	Chalcedony	Silicified wood	Quartzite	Quartz		
5	1		2	2	Complete	10 (15)
10		2	4	1	Broken	17 (25)
8	1	4	1	6	Fragment	20 (30)
5			3	12	Debris	20 (30)
28 (42%)	2 (3%)	6 (9%)	10 (15%)	21 (31%)	Total (%)	67 (100)

Table 7.16. Total Nontool Flaked-Lithic Debitage Assemblage, 5EP2524.

Complete N (%)	Broken N (%)	Fragment N (%)	Debris N (%)	Total N (%)	
0 (0)	1 (12.5)	2 (25)	5 (62.5)	8 (100)	Surface
10 (15)	17 (25)	20 (30)	20 (30)	67 (100)	Subsurface
10 (13.3)	18 (24)	22 (29.3)	25 (33.3)	75 (100)	Total

Several general conclusions are drawn about the flaked-lithic assemblage from this site. Both core reduction and tool manufacturing technologies were practiced at the site. Broken flakes and flake fragments make up over half of the nontool flaked-lithic assemblage. The high percentages of these two categories suggest that tool manufacturing was a prevalent activity at this location. This contrasts with the fact that only three formal tools and a tabular piece of sandstone that may have been ground were recovered from investigations at the site. The only other tools found at the site are of an expedient variety (i.e., utilized flakes, choppers). Core reduction activities also took place at the site based on the presence of complete flakes and debris. No cores or core fragments were identified within the assemblage. Complete flakes represent the smallest total of any of the categories, but the high percentage of debris indicates intense core reduction according to Sullivan and Rosen (1985). The absence of cores may result from the exhaustive nature of intense core reduction practiced at the site. Moreover, the site's prominent location along the terrace edge may have resulted from scavenging of cores and formal tools.

Raw material types identified from the total prehistoric artifact assemblage (89) indicates that chert (49.5%) represent the most prevalent raw material type. Quartz (23.6%), quartzite (12.4%), silicified wood (6.7%), chalcedony (4.5%), sandstone (2.2%), and orthoquartzite (1.1%) were identified. Quartz appears to occur naturally within the area. The high percentage of quartz as a raw material type may be misleading due to its natural presence. Over half of the total amount of quartz is classified as debris with no observable flake characteristics. The structure of quartz makes it difficult to distinguish natural fragments from intentional flaking. This fact illuminates a problem related to Sullivan and Rosen's (1985) nontool flaked-lithic debitage classification regarding raw material types.

There are a few known locations for raw materials suitable for lithic-tool manufacture within the FCMR (Charles et al. 1997; Zier et al. 1992). There are sources of quality chert, chalcedony, silicified wood, orthoquartzite and quartz in the vicinity of Fort Carson. The only specific source areas mentioned in the literature include dendritic yellow and red cherts that originate in the Trout Creek Pass quarries in the Arkansas River headwaters (Chambellan et al. 1984), and the Dawson Arkose source located north of Colorado Springs, a source of high quality silicified wood. Johnson (1961) indicates that there are numerous source of silicified or petrified wood northeast of Colorado Springs. Within the FCRM specific raw material quarries have been identified at two locations (Zier et al. 1992). These include SPE54, a source of quartzite, and SPE369, a source area for cherts and chalcedonies related to reduction activities. Cherts and chalcedonies were noted during the inventory of Booth Mountain as was a source for green orthoquartzite (Charles et al. 1997:6.76). These outcrops are small and most material is unsuitable for flaked-lithic tool production. Cherts and chalcedonies can also be found in pebbles eroding from the foothills. Zier et al. (1992) note that quartzite occurs commonly in areas near Turkey Canyon and the lower reaches of Booth Mountain. Quartz (clear and smoky) occurs in the immediate area of Timber Mountain and portions of Cheyenne Mountain. The quartz is found in deposits eroding from the foothills. The quality of quartz material varies greatly, but quartz artifacts were

recovered from site 5EP2524 and from other sites (5PE1810, 5EP2547) recorded during the 1995 and 1996 Fort Lewis College inventories. The gem and mineral guides discuss St. Peter Dome and Crystal Park regions west of Fort Carson as good source areas for both smoky and clear quartz (Johnson 1961; Over 1984).

Discussion and Interpretation

Laboratory analysis of three waterscreen samples (CPUs) from test units at 5EP2524 on the FCMR has shed valuable information on the eligibility status of the site. Based solely on field results, we had recommended that the site not be considered eligible for nomination to the NRHP. However, during laboratory analysis flakes were recovered from waterscreen samples taken in Test Units 1, 9, and 8 in the western portion of the site, and from Test Units 12, 15, 16, and 17 in the eastern portion of the site. An additional 25 flaked-lithic artifacts, which include 1 flaked tool, were recovered from the waterscreen samples of Test Units 15-17. A total of thirty-three artifacts were recovered from all waterscreen samples. Nineteen (58%) of these artifacts would not have been retained in a ¼ in. screen.

Over the course of field work, we had identified a stratigraphic break at Level 5 in Test Unit 8 and noted and collected a small amount of charcoal from the level. Besides the charcoal, a chopper was collected (Figure 7.28). The waterscreen sample from Level 5 contained three extremely small flakes: each of a different material type. These flakes and the sandstone chopper were shown to two lithic analysts. Both analysts concur that the four specimens are of cultural origin. No other artifacts were collected from levels above or below Level 5 in Test Unit 8. A very small amount of charcoal was collected from Level 6. Additionally, a waterscreen sample from Test Unit 9 recovered two very small flakes in Level 3. Level 3 in Test Unit 1 produced two flaked-lithic artifacts; one was from the waterscreen sample and would not have been retained in a ¼ in. screen. The following level was void of artifacts. We suggest that the artifacts possibly represent a buried ethnostratigraphic horizon, and that the three units may be contemporaneous. The hummocky topography displayed at the site is characteristic of the surface morphology produced through fluvioglacial processes; artifacts can occur at different depths across the site and still represent a single cultural period. A wood charcoal sample collected from Level 5 in Test Unit 8 was submitted for radiocarbon AMS dating. A radiocarbon age of 570 ± 50 B.P. (Beta -104298) was obtained on this sample (Appendix II). For the date 570 ± 50 B.P. two calibrated age ranges are possible at the 68 % probability, cal A.D. 1315 to 1345 and cal A.D. 1390 to 1420, and there is a 95% probability that the calibrated date falls between cal A.D. 1300 and 1435. If this date is correct, and if it is associated with a buried ethnostratigraphic horizon, this horizon is associated with the Middle Ceramic Period of eastern Colorado (Eighmy 1984; Zier et al. 1987).

It should be noted in particular that the three flakes from Test Unit 8 exhibit some effects from erosion: smoothing and rounding of the edges of the flake scars. This

weathering can happen from both wind and water erosion, and the presence of rounded edges are evidence for alluvial transport of artifacts. It is possible that the artifacts were moved through the action of water and gravity and may not reflect the remains of *in situ* behavior. Artifacts exposed to the wind for periods of time display similar rounding and smoothing. Although wind abrasion should be considered a viable option, at this point, it is viewed as the less likely of the two. It is argued, however, that processes other than transport may have produced the wear patterns observed on these flakes. An option that should be given serious consideration is that of ground water percolation. The unit was placed in a swell that collects runoff from the slopes above. The parent material, granitic boulders, weather to a sandy loam with good drainage. Tests for calcium carbonate in the field showed a steady increase of CaCO₃ with depth in the soil profile, noticeably increasing just below Level 5. CaCO₃ was noted adhering to the underside of the larger rocks from the unit and on the surface of the broken chopper collected from this level. It is suggested that the weathering on the small artifacts may be the result of water percolation collecting in the soil profile at this level over a fairly significant time period (unknown at this time). These three flaked-lithic artifacts are all very small flakes of a silicate material and are subject to weathering from ground water percolation. In observations of water running over objects of silica, it is noted that over time the silicates can actually dissolve (Hurst and Kelly 1961; Luedtke 1992:108).

The apparent size sorting in the samples (i.e., very small flakes from the control sample) is a bit troubling. There are processes that can explain this phenomenon without significantly compromising the context of the archeological deposits. There may be some movement of the smaller objects downslope; however, the slope gradient at this site is presently low (< 5%), and the effects of slope wash appear minimal. The activities of ants, worms, and burrowing animals can account for size grading on archeological sites and these impacts should be considered. Ant hills are present at the site. Ants, however, usually bring sediments to the surface rather than bury them. Larger animals such as gophers and voles also reside at the site, and observable bioturbation was noted below Level 5 in Test Unit 8. However, if animals were redistributing artifacts throughout the profile, one would expect to find a bimodal distribution of artifacts of differing sizes within two major zones within the profile (Bocek 1986; Erlandson 1984; Johnson and Hester 1972). Since no artifacts of any size were found above or below Level 5 in Test Unit 8, it does not follow that the occurrence of these at this depth is the result of bioturbation. With the small amount of knowledge at hand, it is too early to regard the apparent size sorting as the result of post-depositional processes. Without further data on the range of impacts at the site, it is suggested that the size sorting may result either from sampling biases or from behavior such as tool manufacture that produced mostly small flakes, possibly distributed unevenly across the site. Moreover, the depth of artifacts recovered in Level 5 and the visible weathering of the flake ridges implies that the artifacts have been in this place for some length of time.

Test Units 15, 16, and 17 had artifacts from the surface to 40 cm below the surface. These three units accounted for 73 percent of all artifacts recovered during excavation. The waterscreen samples from Test Units 15-17 produced 25 flaked-lithic artifacts. This brings

the total artifact count of the three units to 58. Four of the 58 artifacts (7%) are tools. Studies (Flenniken and Haggerty 1982) have shown that archeological sites with a sandy loam matrix such as those at 5EP2524, possess a high capability to absorb trampled archeological materials. Mathews (1965) concludes that occupational trampling accounts for substantial mixing of artifacts within a zone extending approximately 30 cm below the surface. Occupational trampling then could account for the depth range in artifacts from Test Units 15-17. It is suggested that Stratum 2a in Units 16 and 17 is an ethnostratigraphic unit with an occupation surface present around 22 cm below the surface. Artifacts recovered from above and below this horizon may be a result of multiple transformation processes that include faunalurbation, slope migration, and occupational trampling.

Summary Discussion and Conclusion

Twenty-one features were identified at 5EP2524. Four of the features (Features 1, 2, 11, and 17) were tested to determine their origin. These four features were believed to have the best potential of producing evidence for prehistoric use. Two of the four features tested produced artifacts; Feature 17 produced several recent soda cans from the test unit within the feature's interior, and test units at Feature 1 recovered three flaked-lithic artifacts and one piece of glass. All of these artifacts came from test units on the outside of the feature. None of the tested features exhibited interior use surfaces. Sediments from the interior are generally shallow and end at rocky substrata. Two of the tested features (Features 11 and 17) showed discrepancies in the stratigraphic sequence between the interior and the exterior units. This discrepancy suggests that features were recently dug out. Soil development has been interrupted in the interior of these two features.

Features 14 and 15 are related to historic occupation. Feature 14 represents the remains of a historic road or trail. Feature 15 appears related to both the road and a concentration of historic artifacts. Single-boulder alignments may have denoted property boundaries or perhaps they were moved aside to clear the area of the larger boulders. The stacked-boulder features on the site are positioned along the sides of a historic road. It is suggested that rocks were cleared from the road right-of-way and may have been intentionally stacked to minimize slope failure.

The rest of the features, with the possible exception of Feature 1, are determined to be of military origin. Besides the two historic features, all but Feature 1 are shrouded by vegetation which obscures visibility from the air or the ground. This is a standard camouflage technique for military features (Department of the Army 1948). The fact that many of the features appear to utilize modern vegetation does not appear accidental but rather reflects a preferred location.

Eight of the twenty-one features (Features 2, 5, 11, 13, 16, 17, 18, and 20) had recent debris on the surface (rifle casings, can fragments, glass, rubber, sand bag, plastic spoons,

a wooden crate, and cardboard). All of the casings appear to be military-issue rifle ammunition, which is common throughout FCRM. The cans are all recent, and some are definite military-issue provisions.

Six of the features (Features 6, 7, 8, 9, 12, and 13) have exposed sediments within them and appear to be the most recently constructed. The excavated depressions are still visible in these six features. Sediments removed from the features' interior are used to create a berm around the perimeter. One of the features, Feature 12, is a rectangular depression with nearly vertical walls. This feature type resembles a military prone shelter. Prone shelters provide some protection against air bombardment, artillery, and small arms fire (Department of the Army 1948:567).

The general orientation of the features away from terrace edges suggests they are defensive positions directed toward the open and higher areas to the north. Based on their construction and view, twelve of the twenty-one features (Features 5, 6, 7, 8, 9, 10, 12, 13, 16, 18, 19, and 21) are oriented to the north. Archeological sites situated along canyon rims or high terrace edges are generally thought to be used as vantage positions that offer the sites' occupants unobstructed views.

The presence of lichen on stone used in construction is not a true indicator of age. Features with obvious military association had lichen on construction rock. Lichen is only an indicator of how long the face of the rock has been exposed, not how long it has been in place. The only feature that may represent a prehistoric structure, Feature 1, had no definable interior habitation surface. Both historic and prehistoric artifacts could be associated with this feature. The open nature of Feature 1 in comparison to the others did distinguish this feature from other similar features.

A review of previous excavations conducted at Fort Carson (Hartley et al. 1983; Ireland 1968; Kalasz et al. 1993; Van Ness et al. 1990; Zier and Kalasz 1985; Zier et al. 1988, 1996; Zier 1989) indicates that excavations range from trowel testing of open-hearth features to more extensive excavations conducted at the Avery Ranch Site (5PE56) and the Recon John Shelter (5PE648). The features tested by Fort Lewis College at 5EP2524 do not resemble other previously excavated or tested features at Fort Carson. A major construction difference between these features and those features at 5EP2524 is the use of tabular sandstone as opposed to rounded glacial cobbles and boulders. Sandstone was the preferred construction material for prehistoric sites with architecture at Fort Carson. Upright sandstone slabs are often incorporated into the architecture of the prehistoric structures. There are no upright slabs noted within the features at 5EP2524. Some of the features at 5EP2524 are more explicit than most of those investigated at Fort Carson. The only investigated features that exhibit the same degree of formality in their construction as those from 5EP2524 are the long c-shaped enclosures at 5PE56 (Avery Ranch Site) and at 5PE649. The smaller structural remains at these two sites are not nearly as obvious from the surface. The only known site with as many structural features as 5EP2524 is site 5PE889, the Sullivan Butte

Site. This site is reported to possess 23 architectural features within an extensive but widespread flaked-lithic scatter (Van Ness 1990:349).

The site did not appear to be eligible for NRHP based on the features and excavation when field work had concluded. Excavation of Test Units 1, 8, 9, 12, 15, 16, and 17 suggested the site has isolated areas of buried artifacts which are unrelated to the boulder features. The waterscreen samples processed in the lab resulted in the reevaluation of the site. At this time and with the additional knowledge gained from laboratory analysis, it is recommended that the site be considered as eligible for nomination to the NRHP because it has produced important information on the prehistoric settlement of the FCMR. It is suggested that additional testing be conducted to better delineate the horizontal and vertical extent of the subsurface archaeological component(s).

Chapter 8

Management Information and Concluding Remarks

Introduction

This chapter summarizes the results of the 1996 archeological survey of selected parts of the FCMR conducted by Fort Lewis College. Moreover, it offers a number of avenues for further research that may contribute to a greater understanding of the prehistory and history of the military reservation.

Management Summary

A cultural resource inventory of 827 acres of portions of Cheyenne Mountain and Timber Mountain in the FCMR, El Paso County, Colorado was conducted by Fort Lewis College during the summer of 1996. The cultural resource inventory resulted in the identification and recording of 27 cultural properties, which comprise 16 archeological sites and 11 isolated finds. Besides the 16 newly recorded sites, 6 previously recorded sites were revisited and recorded. Additionally one site was test excavated for its potential for nomination to the National Register of Historic Places. Based on their potential to contribute significantly to our understanding of the prehistoric and historic past of the FCMR, three of these sites are considered to be eligible for nomination. These sites are summarized below.

5EP2522 is an extensive flaked- and ground-stone scatter. The site has been disturbed by military activities and significant slope wash; most artifacts were observed in concentrations within gullies and on erosional surfaces. These concentrations are a result more of differential surface exposure than of deliberate prehistoric distribution. The large number of artifacts and the variety of tools suggest that this site was intensively occupied. Tool manufacture, core reduction, and plant processing are activities inferred from the artifact assemblage. The depth of sediment and large number of artifacts suggest possible buried artifacts and features, although diagnostic artifacts were not recovered from the surface. It is, therefore, recommended that the site is eligible for nomination to the NRHP. This evaluation is based on the potential for this site to yield information important to our knowledge of the past of FCMR, and in particular to our understanding of resource exploitation and procurement within the Plains-Mountain Transition.

5PE2524 is a very large but sparse surface scatter of historic and prehistoric artifacts interspersed among twenty-one boulder features. Four of these features were tested by Fort

Lewis College in order to determine their age and cultural affiliation; all of them were determined to be of recent military origin. The presence of a buried cultural horizon(s) was determined through test excavations and it is recommended that the site is eligible for nomination to the NRHP for its potential to yield information important to our knowledge of the past of FCMR (Zier et al. 1987), and in particular to our understanding of resource exploitation and procurement within the Plains-Mountain Transition.

5EP2528 is a prehistoric artifact scatter which includes one groundstone artifact. The presence of two temporally distinct projectile points may indicate that the site was occupied during two time periods: Late Archaic (3000 B.C. - 1000 B.C.) and Late Prehistoric (A.D. 800 - A.D. 1450). Based on the variety of tools, both formal and expedient, the presence of a mano fragment and the number of surface artifacts, the site may represent a seasonally occupied site where the occupants utilized the Plains/Foothills transitional zone. The long temporal range of occupation and good sediment depth suggests the possibility for significant buried deposits. It is, therefore, recommended that the site is eligible for nomination to the NRHP for the site's potential to yield information important to our knowledge of the past of FCMR, and in particular to our understanding of resource exploitation and procurement within the Plains-Mountain Transition.

Summary Discussion

Because of the nature of the 1996 survey - in areas scattered throughout different environmental zones in different parts of the military reservation - it is difficult to draw any significant conclusions. However, it is possible to offer a number of tentative conclusions and suggestion avenues for future research that should be pursued in future work on the FCMR.

First, there is a great range in prehistoric site types on the reservation from isolated finds and diffuse lithic scatters to more substantial structural sites containing a wide variety of artifact and material types. At some point in the future, these different site types need to be placed into site systems, which reflect different site functions, different strategies of resource exploitation and variation in the seasonality of site use. It should be expected that throughout the prehistoric period site systems might vary in composition and organization, as a result of such factors as changing environmental constraints.

Second, a complete understanding of prehistoric cultural dynamics on the FCMR will only be achieved by placing the reservation's prehistory into a wider regional context. Because the reservation sits on the junction of the plains and mountains, it is reasonable to hypothesize that the area was exploited by groups whose primary territories lay in either of these major environmental zones. While the foothills were clearly a major wintering zone for both animals and humans, the diversity of animal and plant resources on the reservation suggests that use was potentially year-round. It is likely that subsistence strategies were

palimpsests, with different groups using the reservation in a complex and as yet only partially understood manner.

Thirdly, these and other research questions will only be understood by more extensive excavations of selected sites, which will allow researchers the opportunity both to delineate exploitation patterns and the relationships between sites on the reservation and adjacent areas, and to identify changes in these patterns through time, as well as their causes.

Fourthly, work needs to be aimed at clarifying the differences between prehistoric structures and morphologically similar ones of military origin, so that they can be more easily distinguished in the field. Site 5EP2524 is an excellent example of this, in the sense of the very great difficulties encountered at that site in differentiating between prehistoric structures and recent military machine-gun nests and related activities. Moreover, it is likely that military personnel have used the remains of prehistoric structures as sites for their own activities, again confusing the archeological integrity of both types of site.

REFERENCES CITED

- Ahler, S. A.
1970 Projectile Point Form and Function at Rodgers Shelter, Missouri. *Missouri Archaeological Society Research Series* 8.
- 1992 Redefinition of Chipped Stone Lithic Raw Material Types. Appendix II. In *Archeological Investigations at Ceramic Stage Sites in the Piñon Canyon Maneuver Site, Colorado*, edited by L. Loendorf, J. Borchert, and D. Klinner, Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
- Alexander, R., J. Hartley, and T. Babcock
1982 *A Settlement Survey of the Fort Carson Military Reservation* 3 vols. Ms. on file, Grand River Consultants, Grand Junction, CO.
- Anderson, J. L.
1990 Prehistoric overview. In *An Introduction to the Archaeology of Piñon Canyon, Southeastern Colorado*, vol. II, edited by W. Andrefsky, Jr., pp. VII-1-30. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
- Andrefsky, W. (ed.)
1990 *An Introduction to the Archaeology of Piñon Canyon, Southeastern Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
- Antevs, E.
1955 Geologic-climatic dating in the West. *American Antiquity* 20:317-35.
- Athearn, F. J.
1985 *Land of Contrast. A History of Southeast Colorado*. *Cultural Resource Series* 7, Bureau of Land Management, Denver, Colorado.
- Bamforth, D. B.
1988 *Ecology and Human Organization on the Great Plains*. Plenum Press, New York.
- Barber, L.
1987 *The Rimfire Cartridge in the United States and Canada, 1857-1894*. Plenum Press, New York.

- Barnes, A.
 1991 *An Archival and Photographic Study of World War II Temporary Wooden Buildings, Fort Carson Military Reservation, Colorado*. Centennial Archaeology, Inc., Fort Collins, CO.
- Bass, W. B. and P. Kutsche
 1963 A human skeleton from Pueblo County, Colorado. *Southwestern Lore* 29(2):40-43.
- Baugh, T. G.
 1994 Holocene adaptations in the southern High Plains. In *Plains Indians A.D. 500-1500*, edited by K. Schlesier, pp. 264-289. University of Oklahoma Press, Norman.
- Bates, R. and J. Jackson
 1984 *Dictionary of Geological Terms*. Doubleday, New York.
- Bender, S. J. and G. A. Wright
 1988 High-altitude occupations, culture process, and High Plains prehistory: retrospect and prospect. *American Anthropologist* 90:619-639.
- Benedict, J. B.
 1973 Chronology of cirque glaciation, Colorado Front Range. *Quaternary Research* 3:584-599.
 1979 Getting away from it all: a study of man, mountains, and the two-drought Altithermal. *Southwestern Lore* 45:1-12.
 1992 Footprints in the snow: high-altitude cultural ecology of the Colorado Front Range. *Arctic and Alpine Research* 24: 1-16.
- Benedict, J. B. and B. Olson
 1978 The Mount Albion Complex. A Study of Prehistoric Man and the Altithermal. *Research Report* 1. Center for Mountain Archaeology, Ward, CO.
- Black, K. D.
 1991 Archaic continuity in the Colorado Rockies: the Mountain Tradition. *Plains Anthropologist* 36: 1-29.
 1994 *Archaeology of the Dinosaur Ridge Area*. Friends of Dinosaur Ridge and the Colorado Historical Society, Denver, CO.

- Bocek, B.
 1986 Rodent Ecology and Burrowing Behavior: Predictive Effects on Archaeological Site Formation. In *American Antiquity*, 51(3): 589-603.
- Buchner, A. P.
 1979 *Cultural Responses to Altithermal (Atlantic) Climate along the Eastern Margins of the North American Grasslands:5500-3000 B.C.* Ph.D. dissertation, University of Calgary.
- Burns, G. R. and W. K. Killam
 1983 Cultural Resource Inventory of Tank Gunnery Range Fan Number 45, Fort Carson Military Reservation, Colorado. *Cultural Resource Report 5*. Goodson and Associates Inc., Lakewood, CO.
- Butler, W. B.
 1986 *Taxonomy in Northeastern Colorado Prehistory*. Ph.D. dissertation, University of Missouri.
- 1990 *Cultural Resource Survey of Ten Soil Conservation Structures and the Gale Irrigation Ditch, Fort Carson Military Reservation, El Paso and Pueblo Counties, Colorado*. Ms on file, Army Environment, Energy and Natural Resources Division, Fort Carson, CO.
- 1991 *Reconnaissance Survey of a Proposed Fiber-Optic Line, Fort Carson Military Reservation, El Paso and Pueblo Counties, Colorado*. Ms. on file, U.S. Army 4th Infantry Division (Mech) and HQ Fort Carson, Fort Carson, CO.
- 1992 *Cultural Resource Investigation of Several Small Scale Projects on the Fort Carson Military Reservation, El Paso and Pueblo Counties, Colorado*. National Park Service, Interagency Archeological Services-Denver, Denver, CO.
- Butler, W. B., S. A. Chomko, and J. M. Hoffman
 1986 The Red Creek Burial, El Paso County, Colorado. *Southwestern Lore* 52(2):6-27.
- Butzer, K. W.
 1982 *Archaeology as Human Ecology*. Cambridge University Press, Cambridge.

Calabrese, F. A.

- 1972 Cross Ranch: A Study of Variability in a Stable Cultural Tradition. *Plains Anthropologist*, Memoir 9.

Campbell, R. G.

- 1969 *Prehistoric Panhandle Culture on the Chaquagua Plateau, Southeastern Colorado*. Ph.D. dissertation, University of Colorado.

- 1976 The Panhandle Aspect of the Chaquagua Plateau. *Graduate Studies of Texas Technical University* 11, Lubbock, Texas.

Carrillo, R.

- 1990 Historic overview. In *An Introduction to the Archaeology of Piñon Canyon, Southeastern Colorado*: vol. III, edited by W. Andrefsky, Jr., pp. XVIII-1-45. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Carillo, R., D. Adams, and D. Larson

- 1989 Relative dating of historic homesteads: a test employing cartridges and bottle glass. In *Temporal Assessment of Diagnostic Materials from the Piñon Canyon Maneuver Site*, edited by C. Lintz and J. Anderson. Memoir of the Colorado Archaeological Society 4.

Cassells, E. S.

- 1983 *The Archaeology of Colorado*. Johnson Books, Boulder, CO.
- 1992 A history of Colorado archaeology: I. In *The State of Colorado Archaeology*, edited by P. Duke and G. Matlock, pp.4-34. Colorado Archaeological Society Memoir 5.

Chambellan, C., M. Kadziel, T. Lennon, and E. Wade

- 1984 *A Cultural Resource Evaluation of Site 5CF84, Salida Ranger District, Pike and San Isabel National Forests, Colorado*. Ms. on file, Western Cultural Resource Management, Boulder, CO.

Charles, M., P. Duke, and R. Nathan

- 1996 *A Cultural Resource Inventory of Portions of Booth Mountain, Fort Carson Military Reservation, Pueblo County, Colorado*. Ms. on file, Midwest Archeological Center, Lincoln, NE.

Chomko, S. A.

- 1991 Wyoming and the High Plains: the levels to the truth. Paper presented at the 49th Plains Conference, Lawrence, KS.

- Chomko, S. A., S. DeVore, and L. Loendorf.
 1990 *Apishapa Phase Research at the Piñon Canyon Maneuver Site, Southeastern Colorado*. Paper presented at the 48th Plains Conference, Oklahoma City.
- Connor, M.
 1996 Letter to Philip Duke, April 5, 1996. Letter on file at Fort Lewis College, Durango, CO.
- Connor, M. and J. Schneck
 1996 *The Old Hospital Complex (5EP1778) Fort Carson, Colorado*. National Park Service, Midwest Archeological Center, NE.
- Dames and Moore
 1978 *Fort Carson Colorado: Terrain Analysis*. Prepared by Dames and Moore, Washington D.C., under direction of Terrain Analysis Center, U.S. Army Engineer Topographic Laboratories, Fort Belvoir, VI.
- Dean, J. C.
 1992 *Guidelines to Required Procedures for Archaeological Field and Laboratory Work at Piñon Canyon Maneuver Site Las Animas County, Colorado*. Ms. on file, U.S. Army by Department of Anthropology, University of North Dakota.
- Department of the Army
 1948 *The National Guard Manual*. Prepared under the direction of the Chief, Army Field Forces, United States Army.
 1984 *Facilities Engineering: Historic Preservation--Army Regulation AR 420-40*. Headquarters, Department of the Army, Washington D.C.
- Dick, H. W.
 1963 *Preliminary Report: Trinidad Reservoir, Las Animas County, Colorado*. Ms. on file, Midwestern Archeological Center, National Park Service, Lincoln, NE.
- Dolphin, Richard
 1977 *The International Book of Beer Can Collecting*. Castle Books, Seacacus, NJ.
- Driver, J. C.
 1978 *Holocene Man and Environments in the Crowsnest Pass, Alberta*. Ph.D. dissertation, University of Calgary.

Duke, P.

- 1978 *The Crowsnest Pass: a Locational Analysis*. Master's thesis, University of Calgary.

Duke, P. and M. Charles

- 1996 A Proposal for a Continuation of a Cooperative Agreement between Fort Lewis College and National Park Service. Title: A Class III Survey of Sections of the Fort Carson Military Reservation. Southern Colorado. Proposal submitted to National Park Service, Midwest Archeological Center, Lincoln, NE.

Duke, P. and M. Wilson

- 1994 Cultures of the Mountains and Plains: from the Selkirk Mountains to the Bitterroot Range. In *Plains Indians A.D. 500-1500*, edited by K. Schlesier, pp. 56-70. University of Oklahoma Press, Norman.

- 1995a Introduction. Postprocessualism and plains archaeology. In *Beyond Subsistence: Plains Archaeology and the Postprocessual Critique*, edited by P. Duke and M. Wilson, pp. 1-27. University of Alabama Press, Tuscaloosa.

- 1995b *Beyond Subsistence: Plains Archaeology and the Postprocessual Critique*. University of Alabama Press, Tuscaloosa.

Eddy, F. W., P. Friedman, R. Oberlin, T. Farmer, D. Dahms, J. Reining, B. Leichtman.

- 1982 *The Cultural Resource Inventory of the John Martin Dam and Reservoir*. Ms. on file, Corps of Engineers, Albuquerque, NM.

Eddy, F. W., R. Oberlin, and T. R. Farmer

- 1984 Spatial analysis of archaeological data at the John Martin Dam and Reservoir, Southeastern Colorado. *Plains Anthropologist* 29 (103):25-40.

Eighmy, J.

- 1984 *Colorado Plains Prehistoric Context for Management of Prehistoric Resources of the Colorado Plains, RP3 Documents*. Office of Archaeology and Historic Preservation, Colorado Historical Society, Denver.

Erlandson, J. M.

- 1984 A Case Study in Faunalurbation: Delineating the Effects of the Burrowing Pocket Gopher on the Distribution of Archaeological Materials. In *American Antiquity*, 49(4): 785-790.

- Evanoff, E., B. Burger, M. Burke, M. Dorsett, and K. Wright
 1996 *Preliminary Mapping and Report of the Physiography, Geophysical Data, Surficial Geology, and Paleontological Resources of the Fort Carson Military Reservation, Colorado*. Ms. on file, Midwest Archeological Center, Lincoln, NE.
- Fenneman, N.
 1931 *Physiography of western United States*. McGraw Hill, New York.
- Flenniken, J. and J. Haggerty
 1982 Trampling as an Agency in the Formation of Edge Damage: An Experiment in Lithic Technology. *Northwest Anthropological Research Notes* 16.
- Forbes, J. D.
 1960 *Apache, Navajo and Spaniard*. University of Oklahoma Press, Norman.
- Forbis, R. G.
 1978 Some facets of communal hunting. In *Bison Procurement and Utilization: a Symposium*, edited by L.B. Davis and M.C. Wilson, pp. 3-8. Plains Anthropologist Memoir 14.
- Frison, G. C.
 1973 The Plains. In *The Development of North American Archaeology*, edited by J. Fitting, pp. 151-184. Doubleday Books, Garden City, NY.
 1978 *Prehistoric Hunters of the High Plains*. Academic Press, New York.
- Frison, G. C., R. L. Andrews, J. M. Adovasio, R. C. Carlisle, R. Edgar
 1986 A late Paleoindian animal trapping net from northern Wyoming. *American Antiquity* 51:352-361.
- Fulgham, T. and J. Anderson
 1984 *Proposed Chronological Framework for the Fort Carson-Piñon Canyon Area*. Contribution No. 2. Phase I of the Fort Carson-Piñon Canyon Project. Ms. submitted to the National Park Service, Rocky Mountain Regional Office, Denver.
- Gilbert, G. K.
 1897 Description of the Pueblo Quadrangle. *Geological Survey Atlas Folio* 36. United States Geological Survey.

- Gillio, D., F. Levin, and D. Scott
 1980 Some Common Artifacts Found at Historical Sites. *Cultural Resource Report 31*. USDA Forest Service, Southwestern Region, Albuquerque, NM..
- Grant, M. P., and C. Zier
 1987 *An Archaeological Inventory of Selected Sample Transects on the Fort Carson Military Reservation, El Paso, Fremont, and Pueblo Counties, Colorado*. Centennial Archaeology, Inc., Fort Collins, CO.
- Gunnerson, J. H.
 1987 *Archaeology of the High Plains*. Bureau of Land Management, Denver, CO.
- 1989 Apishapa Canyon Archeology: Excavations at the Cramer, Snakes Blakeslee and Nearby Sites. *Reprints in Anthropology* 41. J&L Reprint Co, Lincoln, NE.
- Guthrie, M. R., P. Gadd, R. Johnson, J. J. Lischka
 1984 *Colorado Mountains Prehistoric Context, RP3 Documents*. Office of Archaeology and Historic Preservation, Colorado Historical Society, Denver.
- Hammond, G. P. and A. Rey (eds.)
 1940 *Narratives of the Coronado Expedition, 1540-1542*. University of New Mexico Press, Albuquerque, NM.
- Hartley, J. D., C. A. Rolen, T. F. Babcock, and R. K. Alexander
 1983 *A Settlement Survey of the Fort Carson Military Reservation, Vol II: 1982 Site Investigations*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
- Hayden, B.
 1982 Interaction parameters and the demise of Paleo-Indian craftsmanship. *Plains Anthropologist* 27:109-123.
- Hayden, F.V.
 1889 *Geological and Geographical Atlas of Colorado and Portions of Adjacent Territory*. United States Geological and Geographical Surveys of the Territories. Department of the Interior.
- Higgs, E. S. and M. R. Jarman
 1975 Palaeoeconomy. In *Palaeoeconomy*, edited by E.S. Higgs, pp. 1-7. Cambridge University Press, Cambridge.

- Hildebrand, B.
 1996 Notes from records search at Bureau of Land Management Office, Canon City and El Paso County Assessor's Office, Colorado Springs, CO.
- Holliday, V. T.
 1987 Geoarchaeology and late Quaternary geomorphology of the Middle South Platte River, northeastern Colorado. *Geoarchaeology* 2:317-329.
- Hurd, C. W.
 1960 Bent's Stockade Hidden in the Hills. *Bent County Democrat*, Las Animas, Colorado.
- Hurst, V. J. and A. R. Kelly
 1961 Patination of cultural flints. In *Science* 134:251-256.
- Hutchinson, L. A.
 1990 *Archaeological Investigations of High Altitude Sites near Monarch Pass, Colorado*. Master's thesis, Colorado State University, Fort Collins, Co.
- Hyde, G.
 1976 *Indians of the High Plains*. University of Oklahoma Press, Norman. (1st ed. 1959).
- Ireland, S. K.
 1968 *Five Apishapa Focus Sites in the Arkansas Valley, Colorado*. Master's thesis, University of Denver.
- Irwin, J. and C. Irwin
 1959 Excavations at LoDaiska Site. *Denver Museum of Natural History Proceedings* 6.
- Irwin-Williams, C.
 1967 Picoso: the elementary southwestern culture. *American Antiquity* 34:441-456.
- Irwin-Williams, C. and H. Irwin
 1966 Excavations at Magic Mountain: a Diachronic Study of Plains Southwest Relations. *Denver Museum of Natural History Proceedings* 12.
- Jepson, D. A., C. J. Zier, S. M. Kalasz, and A. M. Barnes
 1992 *Archaeological survey of high priority parcels and other miscellaneous areas on the Fort Carson Military Reservation, El Paso, Pueblo, and Fremont Counties, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

- Johnson, D. L. and N. C. Hester
 1972 Origins of Stone Pavements on Pleistocene Marine Terraces in California. In *Proceedings, Association of American Geographers* 4: 50-53.
- Johnson, E. (ed.)
 1988 *Lubbock Lake. Late Quaternary Studies on the Southern High Plains*. Texas A & M University Press, College Station.
- Johnson, H.
 1961 *Gem Hunters Atlas Southwest*. Challenge Press, Susanville, CA.
- Kalasz, S., D. Jepson, C. Zier, M. Van Ness
 1993 *Test Excavations of Seven Prehistoric Sites on the Fort Carson Military Reservation, El Paso and Pueblo Counties, Colorado*. Ms. on file, National Park Service Rocky Mountain Regional Office, Denver.
- Kelly, R. L. and L. Todd
 1988 Coming into the country: early Paleoindian hunting and mobility. *American Antiquity* 53:231-244.
- Kempton, K. and R. Carrillo
 1990 Historic site type synthesis. In *An Introduction to the Archaeology of Piñon Canyon, Southeastern Colorado: Vol.III*, edited by W. Andrefsky, Jr. pp. XXII-1-65. Ms. on file, National Park Service, Rocky Mountain Regional Office, Denver.
- Kingsbury, L. A. and L. H. Gabel
 1983 Eastern Apache campsites in southeastern Colorado: an hypothesis. In *From Micocosm to Macrocosm: Advances in Tipi Ring Investigation and Interpretation*, edited by L.B. Davis, pp. 319-325. *Plains Anthropologist* Memoir 19.
- Korgel, R.
 1996 *Test Excavations at Mountain Post Sports Complex Fort Carson, Colorado*. Ms. on file, Midwest Archeological Center, Lincoln, NE.
- Kovel, R. and T. Kovel
 1953 *Dictionary of Marks Pottery and Porcelain*. Crown Publishers, Inc. New York.

- Krieger, A. D.
 1964 Early man in the New World. In *Prehistoric Man in the New World*, edited by J. Jennings and E. Norbeck, pp.23-81. University of Chicago Press, Chicago.
- Kroeber, A. L.
 1939 Cultural and Natural Areas of North America. *University of California Publications in American Archaeology and Ethnology* 8.
- Lehmer, D.
 1971 Introduction to Middle Missouri Archeology. *National Park Service Anthropological Papers* 1.
- Lehner, L.
 1980 *Complete Book of American Kitchen and Dinner Wares*. Wallace-Homestead Book Company, Des Moines, IA.
- Lewis, O.
 1942 The Effects of White Contact upon Blackfoot Culture, with Special Reference to the Fur Trade. *American Ethnological Society Monograph* 6.
- Lintz, C.
 1978 Architecture and radiocarbon dating of the Antelope Creek Focus: a test of Campbell's model. *Plains Anthropologist* 23:319-328.
 1984 *Architecture and Community variability within the Antelope Creek Phase of the Texas Panhandle*. Ph.D. dissertation, University of Oklahoma.
 1986 The historical development of a culture complex: the basis for understanding architectural misconceptions of the Antelope Creek Focus. In *Current Trends in Southern Plains Archaeology*, edited by T.G. Baugh, pp. 111-128. *Plains Anthropologist Memoir* 21.
- Lintz, C. and J. L. Anderson (eds)
 1989 *Temporal Assessment of Diagnostic Materials from the Pinon Canyon Maneuver Site*. *Memoirs of the Colorado Archaeological Society* 4.
- Luedtke, B. E.
 1992 An Archaeologists Guide to Chert and Flint. *Archaeological Research Tools* 7. Institute of Archaeology, University of California, Los Angeles.

- Lutz, B. and W. Hunt, Jr.
 1979 *Models for Patterns and Change in Prehistoric Settlement-Subsistence Systems of the Purgatoire and Apishapa Highlands*. Ms. on file, Interagency Archaeological Service, Denver.
- Lynott, M.
 1996 Personal communication to Philip Duke, May 31, 1996.
- Madole, R. F.
 1989 Geomorphology and late Quaternary stratigraphy. In *Archeological Excavation of Recon John Shelter (5PE648) on the Fort Carson Military Reservation, Pueblo County, Colorado*, edited by C.J. Zier, pp. 276-288. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
 1990 Geomorphology and alluvial stratigraphy. In *Archaeological Survey and Test Excavation in the Turkey Canyon Area, Fort Carson Military Reservation, Pueblo and El Paso Counties, Colorado*, edited by Van Ness, M. A., S. M. Kalasz, C. J. Zier, D. A. Jepson, M. S. Toll, R. F. Madole, and R. F. Carrillo, pp.104-123. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.
- Madole, R. F., C. R. Ferring, M. J. Guccione, S. A. Hall, W. C. Johnson and C. J. Sorenson
 1988 *Decade of North American geology. In Geology of North America U.S. and Mexico, Volumes K-Z*, edited by R. B. Morrison. Geological Society America, Boulder, CO.
- Matlock, G. and P. Duke
 1992 The state of the state: a critical review. In *The State of Colorado Archaeology*, edited by P. Duke and G. Matlock, pp.173-205. Colorado Archaeological Society Memoir 5.
- Matthews, J.
 1965 Stratigraphic Disturbance: The Human Element. *Antiquity* 39:295-298.
- McHugh, T.
 1958 Social behaviour of the American buffalo. *Zoologica* 43: 1-40.
- McKern, W. C.
 1939 The Midwestern Taxonomic Method as an aid to archaeological study. *American Antiquity* 4:579-82.

- Mehls, S. F. and C. J. Carter
 1984 *Colorado Southern Frontier Historic Context, RP3 Document*. Office of Archaeology and Historic Preservation, Colorado Historical Society, Denver.
- Mitchell, M.
 1996 The Sopris Phase in regional perspective: an examination of prehistoric frontiers in southeast Colorado. Paper presented at the Annual Meeting of the Colorado Council of Professional Archaeologists, Anasazi Heritage Center, Dolores, CO.
- Mueller, M. A.
 1995 *User's Guide to the Fort Carson Site-Level Databases*. Ms. on file, National Park Service, Rocky Mountain Regional Office, Denver.
- Munsey, C.
 1970 *The Illustrated Guide to Collecting Bottles*. Hawthorn Books, Inc., New York.
- Nickens, P. R. (ed.)
 1988 Archaeology of the Eastern Ute: a Symposium. *Colorado Council of Professional Archaeologists Occasional Papers* 1.
- Over, E.
 1984 Mineral Localities of Colorado. In *Rocks and Minerals*, Second Edition, Heldref Publications, Washington D.C.
- Prothero, D.
 1990 The North American stratigraphic code. North American Commission on stratigraphic nomenclature. In *Interpreting the Stratigraphic Record*. Appendix A. W.H. Freeman, New York.
- Quigg, J. M.
 1974 The Belly River: Prehistoric Population Dynamics in a Northwestern Plains Transition Zone. *Mercury Series* 23, Archaeological Survey of Canada.
- Reeves, B. O. K.
 1973 The concept of an Altithermal cultural hiatus in Northern Plains archaeology. *American Anthropologist* 75:1221-1253.
 1978 Head-Smashed-In: 5000 years of bison jumping in the Alberta Plains. In *Bison Procurement and Utilization: a Symposium*, edited by L.B. Davis and M.C. Wilson, pp. 151-174. *Plains Anthropologist Memoir* 14.

- 1981 The Rocky Mountain eastern slopes: problems and considerations. In *Alberta Archaeology: Prospect and Retrospect*, edited by T. A. Moore, pp. 31-38. Archaeological Society of Alberta, Lethbridge.
- Renaud, E. B.
1931 Archaeological survey of eastern Colorado. *Department of Anthropology, University of Denver Report 1*.
- Rockafellow, B. F.
1881 *History of Fremont County, History of the Arkansas Valley-Colorado*. O.L. Baskin, Chicago.
- Roe, F.
1951 *The North American Buffalo: a Critical Study of the Species in its Wild State*. University of Toronto Press, Toronto.

1955 *The Indian and the Horse*. University of Oklahoma Press, Norman.
- Ronaghan, B. (ed.)
1986 Eastern Slopes Prehistory: Selected Papers. *Archaeological Survey of Alberta Occasional Paper 30*.
- Schlesier, K. H.
1972 Rethinking the Dismal River Aspect and the Plains Athapaskans, A.D. 1692-1768. *Plains Anthropologist* 17:101-133.
- Schroeder, A. H.
1974 A study of the Apache Indians. In *American Indian Ethnohistory: Indians of the Southwest*, edited by D.A. Horr. Garland Books, New York.
- Schweigert, K. P.
1987 *Selected Standing Structures Survey of the Fort Carson Military Reservation, Colorado*. Ms. on file, National Park Service, Rocky Mountain Regional Office, Denver.
- Scott, G. R.
1975 Historic trail map of the Pueblo 1° X 2° Quadrangle, Colorado. *United States Geological Survey Miscellaneous Investigations Series Map I-930*. United States Geological Survey, Boulder, CO.

- Scott, G. R., R. B. Taylor, R. C. Epis, R. A. Wobos
 1978 Geologic map of the Pueblo 1° X 2° Quadrangle, south-central Colorado. *Miscellaneous Map Series Map I-1022*. United States Geological Survey, Boulder, CO.
- Spath, C.
 1993 *City of Colorado Springs, Department of Wastewater, Proposed Test Wells on Fort Carson Military Reservation, Township 16 South, Range 66 W, Section 36, El Paso County: Class III Cultural Resource Inventory*. Metcalf Archaeological Consultants, Inc., Eagle, CO.
- Spielmann, K. (ed.)
 1991 *Farmers, Hunters, and Colonists*. University of Arizona Press. Tucson, AZ.
- Stadt, R.
 1984 *Winchester Shotguns and Shotshells*. Armory Publications, Tacoma, WA.
- Strahler, A. N.
 1964 Quantitative geomorphology of drainage basins and channel networks. In *Handbook of Applied Hydrology*, edited by V. T. Chow. McGraw-Hill, New York.
- Strong, W. D.
 1935 An Introduction to Nebraska Archaeology. *Smithsonian Miscellaneous Collections* 100:353-94.
- Sullivan, A. P. III, and K. C. Rozen
 1985 Debitage analysis and archaeological interpretation. *American Antiquity* 50: 755-779.
- Tweto, O.
 1979 *Geologic Map of Colorado*. United States Geological Survey, Boulder, CO.
- Turner, C. G., II
 1980 Appendix I: Suggestive dental evidence for Athabascan affiliation in a Colorado skeletal series. In *Trinidad Lake Cultural Resource Study, Part II: the Prehistoric Occupation of the Upper Purgatoire River Valley*, edited by C.E. Wood and G.A. Bair. Ms. on file, Interagency Archaeological Services, Denver, CO.

Van Ness, M. A., S. M. Kalasz, C. J. Zier, D. A. Jepson, M. S. Toll, R. F. Madole, and R. F. Carrillo

- 1990 *Archaeological Survey and Test Excavation in the Turkey Canyon Area, Fort Carson Military Reservation, Pueblo and El Paso Counties, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Vickers, J. R.

- 1994 Cultures of the Northwestern Plains: from the Boreal Forest edge to Milk River. In *Plains Indians A.D. 500-1500*, edited by K. Schlesier, pp. 3-33. University of Oklahoma Press, Norman.

Wallace, E. and A. Hoebel

- 1952 *The Comanches*. University of Oklahoma Press, Norman.

Warren, T.

- 1996 Personal communication to Marilyn Mueller, June 4, 1996.

Watts, H. K.

- 1971 *The Archaeology of the Avery Ranch Site on Turkey Creek, southeastern Colorado*. Master's thesis, University of Denver.

- 1975 The Avery Ranch site. *Southwestern Lore* 41:15-27.

Weber, K. R.

- 1990 Ethnohistory of the Piñon Canyon Maneuver Site. In *An Introduction to the Archaeology of Piñon Canyon, Southeastern Colorado*: Vol. III, edited by W. Andrefsky, Jr., pp. XVII-1-28. Ms. on file, National Park Service, Rocky Mountain Regional Office, Denver.

Wedel, W.

- 1936 An Introduction to Pawnee Archaeology. *Bureau of American Ethnology Bulletin* 112.

- 1983 Changing perspectives in Plains Archaeology. *Plains Anthropologist* 28: 89-97.

Weimer, M.

- 1995 Predictive modeling and cultural resource management: an alternative view from the Plains periphery. In *Beyond Subsistence: Plains Archaeology and the Postprocessual Critique*, edited by P. Duke and M. Wilson, pp. 90-109. University of Alabama Press, Tuscaloosa.

- Wendland, W. M.
 1978 Holocene man in North America: the ecological setting and climatic background. *Plains Anthropologist* 23: 273-287.
- Wendland, W. M. and R. Bryson.
 1974 Dating climatic episodes of the Holocene. *Quaternary Research* 4:9-24.
- Wheat, J. B.
 1972 *The Olsen-Chubbuck Site: A Paleo-Indian Bison Kill*. Society for American Archaeology Memoir 26.
- Whittemore, L. R.
 1967 *An Illustrated History of Ranching in the Pikes Peak Region*. Dentan-Berkeland Printing CO, Colorado Springs, CO.
- Willey, G. R. and P. Phillips
 1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.
- Wilson, M. C.
 1988 Bison dentitions from the Henry Smith site, Montana: evidence for seasonality and paleoenvironments at an Avonlea bison kill. In *Avonlea Yesterday and Today: Archaeology and Prehistory*, edited by L. Davis, pp. 203-225. Saskatchewan Archaeological Society, Saskatoon, Saskatchewan.
- Withers, A. M.
 1954 Reports of Archaeological Fieldwork in Colorado, Wyoming, New Mexico, Arizona, and Utah in 1952 and 1953 -- University of Denver Archaeological Fieldwork. *Southwestern Lore* 19:1-3.
 1964 *An Archaeological Survey of Northwestern Pueblo County, Colorado*. Ms. on file, Department of Anthropology, University of Denver.
- Wood, C. E. and G. A. Bair
 1980 *Trinidad Lake Cultural Resources Study, Part II: The Prehistoric Occupation of the Upper Purgatoire River Valley, Southeastern Colorado*. Ms. on file, Interagency Archaeological Services, Denver, CO.
- Wood-Simpson, C.
 1976 *Trinchera Cave: A Rock Shelter in Southeastern Colorado*. Master's thesis, University of Wyoming.

Zier, C. J.

- 1984 *An Archaeological Inventory of the Red Creek Parcel on the Fort Carson Military Reservation, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Zier, C. J. (editor)

- 1989 *Archeological Excavation of Recon John Shelter (5PE648) on the Fort Carson Military Reservation, Pueblo County, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Zier, C. J. and S. M. Kalasz

- 1985 *Archaeological Survey and Test Excavations in the Multi-Purpose Range Complex Area, Fort Carson Military Reservation, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

- 1991 Recon John Shelter and the Archaic-Woodland transition in southeastern Colorado. *Plains Anthropologist* 135:111-138.

Zier, C. J., S. M. Kalasz, D. A. Jepson, S. A. Brown, M. W. Painter, and K. Puseman

- 1996 *Archaeological Survey, Site Documentation, and Test Excavations Conducted During the 1991 and 1993 Field Seasons on the Fort Carson Military Reservation, El Paso, Pueblo, and Fremont Counties, CO*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Zier, C. J., J. H. Altschul, M.K. Kelly, M. R. Rose, K. P. Schweigert, and K. R. Weber

- 1987 *Historic Preservation Plan for Fort Carson Military Reservation, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Zier, C. J., S. M. Kalasz, A. H. Peebles, M. A. Van Ness, and E. Anderson

- 1988 *Archaeological excavation of the Avery Ranch Site (5PE56) on the Fort Carson Military Reservation, Pueblo County, Colorado*. Ms. on file, the National Park Service, Rocky Mountain Regional Office, Denver.

Zier, C. J., S. M. Kalasz, M. A. Van Ness, A. H. Peebles, and E. Anderson

- 1990 The Avery Ranch site revisited. *Plains Anthropologist* 128:147-173.

Appendix I

Colorado State Site Forms

Colorado State Isolated Find Forms

Colorado State Reevaluation Forms

(Removed from public distribution)

Appendix II

Report of Radiocarbon Dating Analyses

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12 = -24.9; lab mult. = 1)

Laboratory Number: Beta-104298

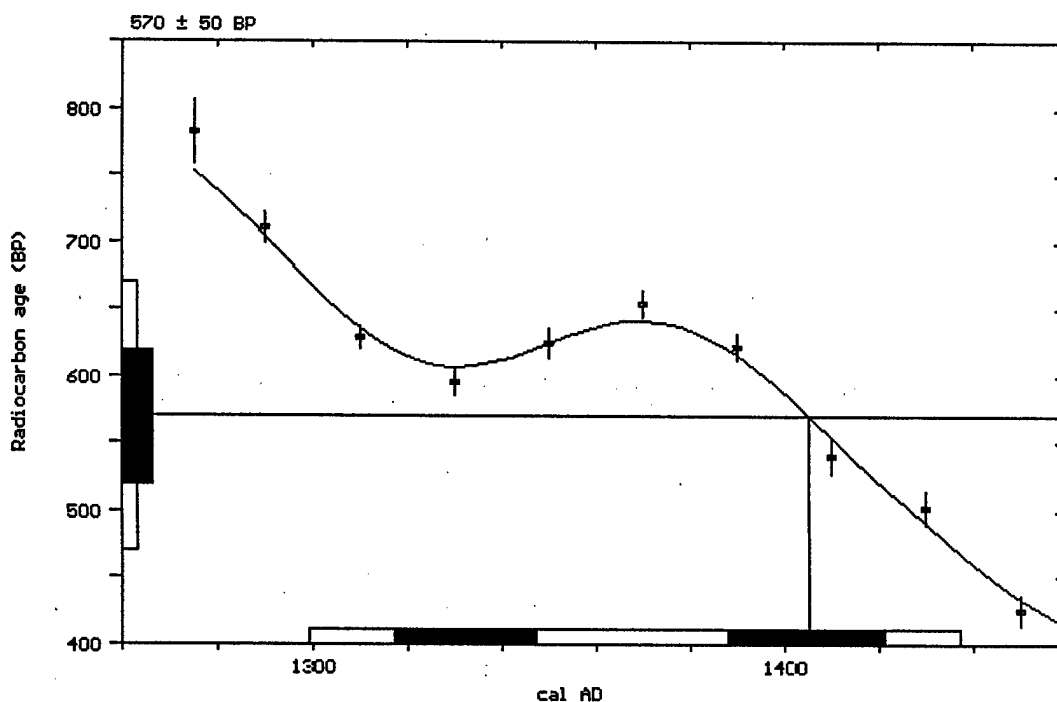
Conventional radiocarbon age: 570 ± 50 BP

Calibrated results:
(2 sigma, 95% probability) cal AD 1300 to 1435

Intercept data:

Intercept of radiocarbon age
with calibration curve: cal AD 1405

1 sigma calibrated results:
(68% probability) cal AD 1315 to 1345 and
cal AD 1390 to 1420



References:

Pretoria Calibration Curve for Short Lived Samples

Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, *Radiocarbon* 35(1), p73-86

A Simplified Approach to Calibrating C14 Dates

Talma, A. S. and Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

Calibration - 1993

Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, *Radiocarbon* 35(1)

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 ■ Tel: (305)667-5167 ■ Fax: (305)663-0964 ■ E-mail: beta@radiocarbon.com